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# The American City Magazine

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1923

# The American City Magazine

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## No Town Too Small for City Planning

CITY planning for a small community, like the training of a growing child, has a twofold object. It makes the life of to-day happier and more harmonious, and it makes more certain the greater and nobler future that ought to be.

Extreme youth or small size is no argument against preparing the child or the city for rational development. The best way to

overcome the errors of youth is to guide the energies of youth by the best experience of maturity.

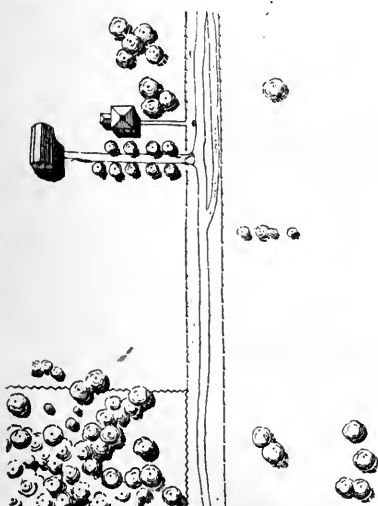
Though no American city has as yet reached a hoary age, we have an abundance of examples, good and bad, where-with to inspire or warn any growing community that is not too self-satisfied to profit by the experience of others.

## When is it Cheapest to Widen the Street?

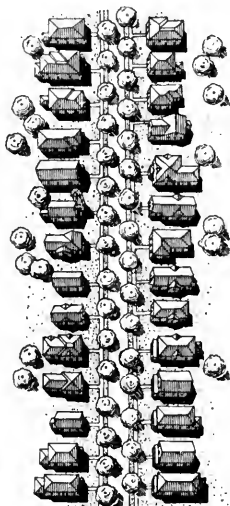
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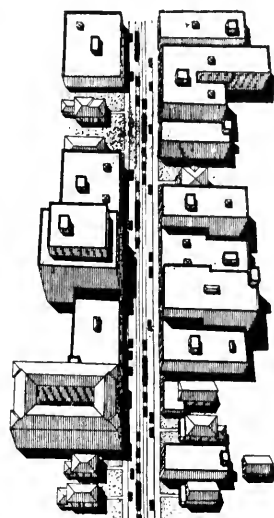
or this?



The country road can be widened at the time the adjacent land is cut up into building lots almost without cost.



Failing this a building line may be established that will secure its eventual widening when the residences are replaced by stores.



When largely built up with expensive commercial buildings widening often becomes prohibitively expensive.

*From a drawing prepared by Robert Whitten, City Planner, for the Cleveland City Plan Commission*

Two articles in the present issue of *THE AMERICAN CITY* give special point to these remarks. One of them describes a notable correction recently made in the plan of Philadelphia in the opening of a single radial thoroughfare at a cost of more than \$17,000,000 for the land alone. The city planners of to-day know better than did William Penn how to lay out the streets of a city—but most of our smaller municipalities do not appear yet to be awake to that fact. The other example is from Denver, which a few weeks ago voted half a million dollars in bonds to pay for a piece of land to add to its civic center. American city planners have been advocating for many years the civic center idea—but most of our smaller municipalities have failed as yet to buy land for a future civic center, or even to make provision for sites for new schools and playgrounds which will soon be needed.

To the importance of one phase of city planning—zoning—the smaller communities

are, fortunately, increasingly awake. The list compiled by the Division of Building and Housing of the United States Department of Commerce, and the supplementary list by Frank Backus Williams on page 87 of this issue, show that of 147 cities already zoned, 55 have less than 10,000 population, and 61 have between 10,000 and 100,000 population. It may be assumed that the protection of residential districts from value-destroying encroachments is just as desirable in the place of 2,000 population as in the place of 200,000. It may be assumed, too, that if Main Street is too narrow, each merchant would rather set back his store to a new building line when he finds it necessary to rebuild, than to have the city condemn the strip at enormous expense a few years hence.

Plan your city in the way it should grow, and when it is old your citizens will have profited greatly in avoidance of needless inconvenience and expense.

## The What, Why and How of Town Planning

Excellent Definitions from the First of a Series of Leaflets Now Being Issued  
by the Garden Cities and Town Planning Association, of London, England

### What Town Planning Is

**T**OWN planning is a means of saving, not spending, money. It aims at preventing disease, and, therefore, promoting health; at preventing ugliness and preserving beauty; at preventing the growth of bad industrial conditions, and, therefore, safeguarding industrial efficiency. It is the application to social conditions of the principles of preventive medicine.

### Why Town Planning Is Necessary

The concentration of our population in towns has produced gigantic evils. Lack of foresight has resulted in the spoiling of many beautiful country districts by the uncontrolled spreading of factories and houses. Houses have been built in places where factories should be. Factories have been placed in residential areas, which have been ruined by noise, smoke, and fumes. Slums have grown up, which are costly to remove. Streets and roads have been made so narrow that they have repeatedly to be

widened at great expense. Insufficient open spaces have been left, so that great masses of people have to live far from contact with nature or opportunities for wholesome recreation. The lack of town planning has been bad for domestic economy, industrial efficiency, and the health and moral welfare of the people.

### How Town Planning Works

Town planning is the art and science of arranging beforehand for the extension of towns and the protection of the country. It does not necessitate buying a single yard of land, but it decides on the broad lines of future development. It surveys the district and decides where houses should be built, where factories should be placed, what roads will be wanted and what width they ought to be to meet the needs of future traffic, what ground should be reserved for parks and sports grounds, and what features of historic or artistic interest should be preserved.

### Building To-morrow's City

When we build, let us think that we build forever. Let it not be for the present delight, nor for present use alone. Let it be such work as our descendants will thank us for, and let us think, as we lay stone upon stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say, as they look upon the labor and wrought substance of them: "See! This our fathers did for us."

—JOHN RUSKIN.

# New York's Silver Jubilee Exposition

By John F. Hyland

Mayor, City of New York

**D**URING the four weeks ending June 23, many thousands of New York's citizens have taken advantage of the finest opportunity ever offered them to visualize the striking growth of the city and the progress made in the various branches of municipal government during the 25 years since the consolidation of the five boroughs. This Silver Jubilee Exposition has occupied four floors in the Grand Central Palace, and several blocks of enclosed street area in the center of Park Avenue.

## Public Welfare and Health Departments

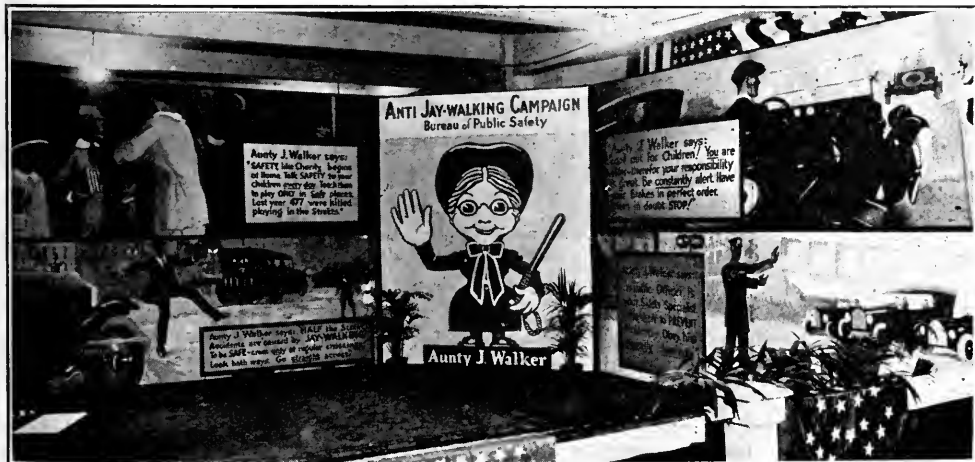
In the exhibits the human side of the government of New York has been particularly stressed. For example, New York City treats annually over 100,000 inhabitants in need of medical or surgical assistance because of accidents or sudden illness on the public streets, homes and places of business. It furnishes quick and efficient ambulance service in such cases. It maintains numerous large hospitals equipped with modern surgical and medical appliances and it has in attendance capable physicians, surgeons and nurses.

The city furnishes shelter to the homeless and aid to the helpless, prevents desti-

tution where temporary assistance will suffice, cares for the feeble-minded, and acts as foster parent to thousands of children. The Department of Public Welfare, in caring for the feeble-minded or defective children, endeavors to make the lives of these unfortunates happy, while at the same time it separates them from normal children and trains them in occupations for which they show aptitude.

New York City pays board for over 15,000 children orphaned by the death, imprisonment or desertion of one or both of their parents. These children are cared for in infant asylums and institutions, by fresh-air societies and churches, or are lodged with relatives, friends of the family or other kindly persons of the same religious faith as the child. Private agencies cooperate in a praiseworthy way with the city in placing a great number of these children in the homes of foster parents.

The city has also been most liberal to the Board of Child Welfare, which strives to carry out the intent of the law to keep the widowed mother and her children together. It now supports directly more than 25,000 children who are being reared by their mothers. The total cost to the city of this beneficent work is about \$10,000 a



A SECTION OF THE EXHIBIT OF THE BUREAU OF PUBLIC SAFETY FEATURING NEW YORK'S "ANTI JAY-WALKING" CAMPAIGN

day. This sum is small in comparison with the happiness that it brings to the mothers and to the little children, brothers and sisters, who are permitted to remain together instead of being separated as in former years.

Prior to the incorporation of the Greater City in 1898, little was done in the way of child hygiene. There were no dental clinics, and treatment of contagious eye diseases in school children was not provided. There was little or no supervision over foods and drugs, except a makeshift examination of milk, which was supplanted by the systematic inspection of food begun in 1904.

"Keep the Babies Well" has been the slogan of our Health Department, and at the 59 baby health stations approximately 50,000 babies under 2 years of age are under the vigilant eye of health department attendants, who at the same time give tactful advice to mothers on the care of children.

New York City is one of the very healthiest cities in the world, according to authentic mortality statistics. The death-rate in 1922 was 12.9 persons per 1,000; London's death-rate was 16.8; Pittsburgh's, 16.3; Paris' 15.52; Boston's, 15.5; Philadel-

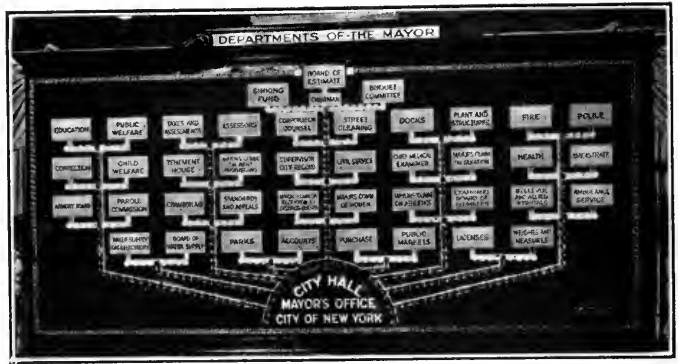


CHART OF THE MAYOR'S RESPONSIBILITIES UNDER THE CHARTER OF NEW YORK

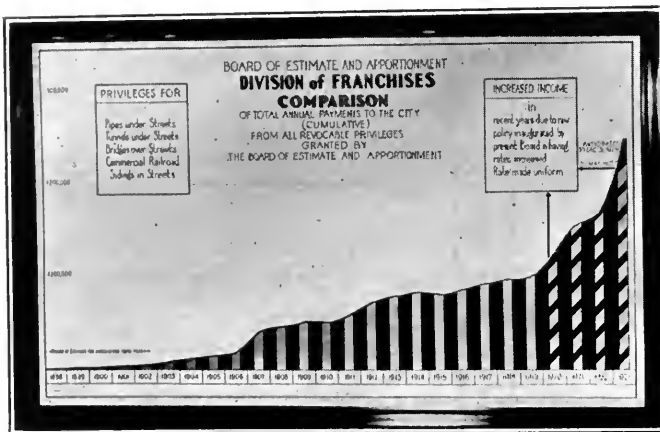
phia's, 14.5; St. Louis', 14.1; and Berlin's, 13.48.

The residents of New York City point with pardonable pride to the immensity of their city, its skyscrapers, magnificent shops, modern hotels, numerous theaters and extensive parks and places of public recreation. But upon the Health Department of the city devolves the responsibility of seeing to it that the health of the city's inhabitants is conserved in order that the manifold business and recreational activities may be properly availed of. How the various departments operate is graphically shown in the Jubilee Exposition.

### Police and Fire Departments

New York is among the safest cities of the world, its Police and Fire Departments being exceptionally well-equipped and efficient, as exemplified by the performance of daily routine and the extra hazards attendant upon great emergencies.

Through our Police Department, protected commercialized vice has been driven from every nook and corner, and the sordidness and shame that thrived and were fostered by collusion with authority have been uprooted, stem and branch. In no vainglorious spirit do we maintain that the city of New York is to-



A CHART WHICH SHOWED THE INCREASED INCOME OF THE CITY IN RECENT YEARS FROM PRIVILEGES FOR PIPES UNDER STREETS, TUNNELS UNDER STREETS, BRIDGES OVER STREETS, AND COMMERCIAL RAILROAD SIDINGS IN STREETS





An explanation of why the budget of the Fire Department has increased fourfold in the last 25 years may be found in the natural expansion of departmental activities, the erection of additional fire-houses and the extension of the paid system to the outlying sections of the city where volunteer companies operated. The number of companies, including fire-boats, was 174 in 1898, as compared with 307 in 1923; and the roster of the uniformed force increased from 2,212 in 1898 to 5,993 in 1923.

Board of Education

The personnel of the school department, to keep pace with the rapidly growing school population, has increased from 11,332 in 1900 to 28,358 in 1922. The increase in attendance at the various schools may be seen from the following table:

	Enrollment, 1900	Enrollment, 1922
Elementary schools .....	403,614	774,519
Kindergarten classes .....	3,631	36,490
High schools .....	11,706	85,219
Training schools for teachers	408	1,715
Vocational and trade schools.		3,928
Continuation and part-time schools .....		3,294
Voluntary continuation schools		5,636
Evening schools .....	27,287	45,212

The Board of Education has given special attention to children who are mentally or physically deficient. There are special classes for children who suffer from heart troubles. Children afflicted with impediments in speech are given individual training and attention. There are open-air classes for children suffering from extreme malnutrition, and these children have shown marked improvement after only a few months in such classes. The organization of school gardens, the use of motion picture machines in school auditoriums, and hot lunches for the poorer children are among other benefits of the city's school system as now administered.

Department of Street  
Cleaning

As compared with nine stables in 1898, the Department of Street Cleaning to-day owns or leases 23 stables, owns 10 garages, leases 2, and has 4 garages under construction, and operates 491 motor trucks and tractors.

The great value of the modern methods and equipment for snow removal, introduced in the latter part of 1920, was particularly noticeable last winter, when there was a snowfall of 55.1 inches—the largest recorded in this city in the last 50 years. The main arteries of traffic were promptly cleared during the progress of each snow-storm, so that there were no large accumulations of snow in any of the main thoroughfares



THE SNOW REMOVED IN NEW YORK CITY IN THE WINTER OF 1922-23 EQUALLED IN CUBIC YARDS 21 TIMES THE VOLUME OF THE MUNICIPAL BUILDING



shortly after the cessation of the storms.

For much of the development along modern lines in the Department of Street Cleaning during the last five years, we owe a deep obligation to the present Commissioner, Alfred A. Taylor, who entered the department as a driver 23 years ago and when elevated to the commissionership put into practical operation the vast fund of knowledge which he had gained.

### Other Striking Facts and Features

It is impossible within the brief compass of a single article to detail the striking advances made in all municipal departments, but the splendid growth and progress of the last 25 years have been portrayed and visualized in our Exposition in order that visitors to New York, as well as the residents, may have the facts about the city.

The Jubilee Exposition points out that while the city 25 years ago had no underground transit, it has to-day 331 single-track miles of underground transportation and it intends to build 379 additional track-miles, making a total of 710, and that, whereas the city to-day operates busses, ferries, trackless trolleys and other modes of transportation, none of these facilities was operated by the city a quarter of a century ago.

How much water for drinking and washing purposes is required by the huge population of New York is statistically set forth in the exhibits of the Department of Water Supply and the Board of Water Supply, which take one through the hills and valleys of the Catskill Mountains to the hydrant in one's home, and indicate the great engineering skill made necessary in the transportation of water approximately 100 miles, and the preservation of its purity, from the source of supply to the source of consump-



THIS MAP SHOWED IN FLASHES OF ELECTRIC LIGHTS THE NUMBER AND LOCATION OF THE VARIOUS KINDS OF PUBLIC BUILDINGS IN NEW YORK, AND ALSO CONTAINED A LIST OF BUILDINGS, AS FOLLOWS:

Armory Board, 40; Bellevue and Allied Hospitals, 53; Borough Presidents, 226; Board of Estimate and Apportionment, 2; Correction, 95; Docks, 237; Education, 654; Fire, 294; Health, 193; Libraries, 98; Parks, 197; Plant and Structures, 69; Police, 327; Public Markets, 10; Public Welfare, 245; Street Cleaning, 193; Water-Supply, Gas and Electricity, 89

tion in the various boroughs.

As a permanent souvenir of the Silver Jubilee of Greater New York, there has been prepared an Official Book of the Exposition containing, in addition to detailed information of the various departmental activities, numerous photographs and charts. Great care has been exercised in the preparation of this volume and it should prove a desirable acquisition to any official or personal library.

We are confident that the many hundreds of exhibits, including those showing how New York raises and spends a million dollars a day for the operation of its municipal machinery, have proved both interesting and entertaining to all spectators, and we hope that many mayors and other officials from other cities throughout the nation have learned something from our Exposition for the betterment and advancement of their own municipalities.

# Comparison of Cost of Purchasing and Installing Meters and of Additional Water-Supply--Part I

By Nicholas S. Hill, Jr.

Consulting Engineer, New York City

SINCE the economic necessity of metering water consumers is unmistakably evident to the water-works engineer and superintendent, it should be demonstrable to city officials. The question has been so thoroughly threshed out that one may well conclude that the opposition still met with in certain places is at least not based on economic grounds. Of course, there is opposition to meters among the public—the opposition of misunderstanding and to some extent of selfishness. The

most unfortunate thing is that this misunderstanding is deliberately fostered by many city officials. A large consumption is presented by such officials as a thing desirable in itself. The idea is disseminated that the unrestricted use of water is a necessity to health—meters are a menace to health. The mayor of one of our large cities recently placed his signature on bill-

boards beneath the statement that his city pumped more water per capita than any other city. He presented this statement to the public apparently with pride. No doubt a considerable portion of the public accepted it with just approval and the admiration which the mayor wished, and without one thought that his boast told of an appalling waste of public funds.

The average citizen cannot be expected to make a study of the meter problem. Therefore, prejudice on the part of the public cannot be wholly avoided, but the ignorance and prejudice of the uninformed may be greatly alleviated by properly informing

the public, and in any event this prejudice should not block progress, and will not block it if public leaders are independent and lead the public along right lines.

With all that has been said and written of the advantages of meters, both to the consumer and to the water department, by those in a position to know, it would seem by this time that municipalities would provide the funds necessary to install meters.

The practise of metering water has increased enormously in the last ten or fifteen

years, so much so that at the present time the practise of measuring the water supplied to consumers is quite general and is still increasing rapidly. It is safe to predict that within the next ten years the great majority of water consumers throughout the United States will be supplied through meters.

No attempt will be made here to develop the history of the introduction of

## The Logic of Using Meters

There are two primary reasons for the use of meters. The first is that selling water by volumetric measurement is the only fair and logical way of selling it because it is the only way by which gross inequalities and discriminations against some of the consumers and in favor of others can be avoided. The second reason is that metering water is the only way yet found of restricting needless waste. The second reason is in itself sufficient for the adoption of the meter system. The first, however, appeals to the consumer if he really understands that he may be one of those who is discriminated against by the older methods of charging for water.

meters in American water-works. The technical journals and reports of municipal water departments have been filled with references to this subject for thirty years. It may be said, however, that if a cheap and reliable water-meter had been available in the early days of American water-works, their general use would have been established long before this. The advantages of the meter system were recognized at an early date. A water-meter of comparatively efficient type first made its appearance in this country between 1870 and 1880, and in the decade beginning with 1880 a rapid advance was made in the in-

stallation of meters. The first use made of meters was to apply them to a selected number of services in a water system, the ones selected being those using the largest amounts of water. By degrees the use of meters was extended to a large per cent of the consumers, whether large or small, and in many cities to-day practically all water is sold through meters.

As an indication of the extensive use of meters at the present time, the following Table, No. 1, gives a list of the fifty largest cities in the United States in 1920 arranged in order of their population. Thirty-two of the fifty cities listed have 75 per cent or more of their service connections metered. As a matter of fact, twenty of them are practically 100 per cent metered.

TABLE 1

*Largest Fifty Cities in the United States, According to Rank*

City	1920 Population
*New York, N. Y.	5,620,048
*Chicago, Ill.	2,701,705
*Philadelphia, Pa.	1,823,779
†Detroit, Mich.	993,678
†Cleveland, Ohio	796,841
†St. Louis, Mo.	772,597
†Boston, Mass.	748,060
*Baltimore, Md.	733,826
†Pittsburgh, Pa.	588,343
†Los Angeles, Calif.	576,673
*Buffalo, N. Y.	506,775
†San Francisco, Calif.	506,676
†Milwaukee, Wis.	457,147
†Washington, D. C.	437,571
†Newark, N. J.	414,524
†Cincinnati, Ohio	401,247
†New Orleans, La.	387,219
†Minneapolis, Minn.	380,582
†Kansas City, Mo.	324,410
†Seattle, Wash.	315,312
†Indianapolis, Ind.	314,194
*Jersey City, N. J.	298,103
†Rochester, N. Y.	295,750
*Portland, Ore.	258,288
†Denver, Colo.	256,491
†Toledo, Ohio	243,164
†Providence, R. I.	237,595
†Columbus, Ohio	237,031
*Louisville, Ky.	234,891
†St. Paul, Minn.	234,698
†Oakland, Calif.	216,261
†Akron, Ohio	208,435
†Atlanta, Ga.	200,616
†Omaha, Nebr.	191,601
†Worcester, Mass.	179,754
†Birmingham, Ala.	178,506
†Syracuse, N. Y.	171,717
†Richmond, Va.	171,667
*New Haven, Conn.	162,537
†Memphis, Tenn.	162,351
†San Antonio, Tex.	161,379
†Dallas, Tex.	158,976
†Dayton, Ohio	152,559
*Bridgeport, Conn.	143,555
†Houston, Tex.	138,276
†Hartford, Conn.	138,036
†Scranton, Pa.	137,783
*Grand Rapids, Mich.	137,634
†Paterson, N. J.	135,875
†Youngstown, Ohio	132,358

† = 75 per cent or more service connections metered.

\* = Cities with small proportion of service connections metered.

‡ = Doubtful—information not at hand.

TABLE 2

*Partial List of Cities and Towns in the United States with a Population of 25,000 or Over Having 75 Per Cent or More Service Connections Metered*

City or Town	Population, 1920 Census	Per Cent Metered
Boston, Mass. (Metropolitan Water District)	1,240,000	78
Detroit, Mich.	993,739	97
Cleveland, Ohio	796,841	100
Pittsburgh, Pa.	588,343	100
Los Angeles, Calif.	576,673	89
San Francisco, Calif.	506,676	100
Milwaukee, Wis.	457,147	99
Washington, D. C.	437,571	85
Newark, N. J.	414,524	75
Cincinnati, Ohio	401,247	97
New Orleans, La.	387,219	100
Minneapolis, Minn.	380,582	100
Kansas City, Mo.	324,410	75
Seattle, Wash.	315,312	100
Rochester, N. Y.	295,750	99
Toledo, Ohio	243,164	85
Providence, R. I.	237,595	94
Columbus, Ohio	237,031	100
St. Paul, Minn.	234,698	93
Akron, Ohio	208,435	100
Atlanta, Ga.	200,616	100
Worcester, Mass.	179,754	96
Birmingham, Ala.	179,000	87
Syracuse, N. Y.	171,717	84
Richmond, Va.	171,667	75
Memphis, Tenn.	162,351	79
Dallas, Tex.	158,976	100
Paterson, N. J.	135,875	85
Dayton, Ohio	152,559	83
Hartford, Conn.	138,000	98
Scranton, Pa.	137,738	100
Youngstown, Ohio	132,358	100
Springfield, Mass.	129,614	98
Des Moines, Iowa	126,468	100
New Bedford, Mass.	121,217	96
Fall River, Mass.	120,485	100
Nashville, Tenn.	118,342	77
Lowell, Mass.	112,769	83
Wilmington, Del.	110,168	96
Fort Worth, Tex.	106,482	88
Spokane, Wash.	104,437	84
Yonkers, N. Y.	100,176	100
Duluth, Minn.	98,917	78
Elizabeth, N. J.	96,000	70
Peoria, Ill.	95,000	77
Lawrence, Mass.	94,270	95
Utica, N. Y.	94,156	94
Somerville, Mass.	93,000	76
Jacksonville, Fla.	92,000	93
Oklahoma City, Okla.	91,295	100
Canton, Ohio	90,000	78
Fort Wayne, Ind.	86,549	77
Manchester, N. H.	78,384	82
El Paso, Tex.	78,000	83
Knoxville, Tenn.	77,813	100
Harrisburg, Pa.	75,917	75
San Diego, Calif.	74,683	100
Tulsa, Okla.	72,075	90
Sioux City, Iowa	71,227	100
South Bend, Ind.	70,983	100
Passaic, N. J.	68,841	95
Hoboken, N. J.	68,166	100
Charleston, S. C.	67,957	98
Johnstown, Pa.	67,327	73
Terre Haute, Ind.	67,000	99
Binghamton, N. Y.	66,800	100
Brockton, Mass.	66,254	100
New Britain, Conn.	59,316	100
Chester, Pa.	58,030	100
Lansing, Mich.	57,327	98
Covington, Ky.	57,121	100
Davenport, Iowa	56,727	87
Lincoln, Nebr.	54,948	85
Augusta, Ga.	53,000	100
East Orange, N. J.	51,000	100
Niagara Falls, N. Y.	50,760	100
Atlantic City, N. J.	50,700	100
Huntington, W. Va.	50,177	100
Topeka, Kans.	50,022	100
Bellevue, Pa.	50,000	100
Jackson, Mich.	50,000	100
Bay City, Mich.	47,500	80
Charlotte, N. C.	46,500	100

Cedar Rapids, Iowa .....	45,500	100
Elmira, N. Y. ....	45,500	100
Cicero, Ill. ....	45,000	100
Galveston, Tex. ....	44,000	100
Montgomery, Ala. ....	44,000	76
Shreveport, La. ....	44,000	82
Decatur, Ill. ....	43,818	100
Woonsocket, R. I. ....	43,500	93
Mt. Vernon, N. Y. ....	43,000	100
Lexington, Ky. ....	42,000	95
Lakewood, Ohio ....	41,732	100
Fitchburg, Mass. ....	41,000	86
Kenosha, Wis. ....	40,372	100
West Hoboken, N. J. ....	40,000	100
Dubuque, Iowa ....	40,000	100
Superior, Wis. ....	39,000	100
Jamestown, N. Y. ....	39,000	98
Madison, Wis. ....	38,500	99
Brookline, Mass. ....	38,000	100
Loraine, Ohio ....	37,500	33
Evanston, Ill. ....	37,300	98
Waterloo, Iowa ....	37,000	100
Battle Creek, Mich. ....	36,500	98
Chicopee, Mass. ....	36,500	77
New Rochelle, N. Y. ....	36,500	93
Council Bluffs, Iowa ....	36,162	100
Auburn, N. Y. ....	36,000	99
Quincy, Ill. ....	36,000	100
Stamford, Conn. ....	35,000	83
Poughkeepsie, N. Y. ....	35,000	100
Austin, Tex. ....	35,000	100
Petersburg, Va. ....	32,000	100
Warren, Ohio ....	32,000	94
Waltham, Mass. ....	31,000	95
La Crosse, Wis. ....	30,000	98
Urbana, Ill. ....	30,000	90
Hutchinson, Kans. ....	30,000	100
West New York, N. J. ....	29,926	100
Miami, Fla. ....	29,571	100
Montclair, N. J. ....	28,810	100
Bloomington, Ill. ....	28,725	100
Hagerstown, Md. ....	28,064	93
Boise City, Ida. ....	28,000	37
Plainfield, N. J. ....	27,700	100
Kearney, N. J. ....	27,000	100
Richmond, Ind. ....	27,000	76
Newark, Ohio ....	27,000	100
New London, Conn. ....	26,000	100
Irrington, N. J. ....	25,480	100
Middletown, Ohio ....	25,000	93
Sioux Falls, S. Dak. ....	25,000	93
Belmar, N. J. ....	25,000	85

There are approximately 287 municipalities in the United States having a population of 25,000 or over. I was unable to obtain statistics from all of these regarding the per cent of services metered, but Table No. 2 shows that at least 135 of these cities and towns have 75 per cent or more of their service connections metered. The total population in the places listed in Table No. 2 is about 16,000,000. There are unquestionably a large number of cities with 75 per cent of their services metered from which I have been unable to secure information. In addition, many of the 288 cities and towns with populations of 25,000 or over are partially metered, but have not as many as 75 per cent of the services metered. Many have from 15 to 50 per cent metered.

In a list of 1,000 cities, towns and villages in the United States with a population of from 1,000 up, there are 1,470 which have 75 per cent or more of their services metered.

Of course, the proportion of the water measured by meters to the total consumed in the cities is much greater than the proportion of the service connections metered in these places is to the total number of service connections, for the reason that meters are usually placed on large consumers first. As an example, in Indianapolis, Ind., 15 per cent of the service connections are metered, but 56 per cent of the total water consumed is measured through the 15 per cent of the metered services.

The use of the meter is a step in the evolution of commercial ethics, just as was the adoption of the yardstick, the bushel measure and the scales. There was a time when the sale and purchase of any commodity was a comedy of dicker, haggle and bargain. Things went by piece, pile, bundle or lot, and the man of cleverness or cupidity, or both, came out on top. There was no uniformity of quality and no unit of quantity. So, in the primitive days of water distribution for commercial and domestic uses, any old system of charging was seized upon and made the basis for water rates.

Early rate schedules, partial and one-sided as they were, based on the experience of the time and not upon any study of the whole situation, have persisted in American water-works practise to a remarkable degree. The tenacity with which municipalities have held to older methods has been a source of wonder to those giving study to the matter, but American cities are awakening to the economic necessities of their taxpayers and ratepayers, as the statistics above given show.

#### The Logic of Using Meters

There are two primary reasons for the use of meters. The first is that selling water by volumetric measurement is the only fair and logical way of selling it because it is the only way by which gross inequalities and discriminations against some of the consumers and in favor of others can be avoided. The second reason is that metering water is the only way yet found of restricting needless waste. The second reason is in itself sufficient for the adoption of the meter system. The first, however, appeals to the consumer if he really understands that he may be one of those who is discriminated against by the older methods of charging for water.

The writer believes that a water-works system must be regarded as a cooperative enterprise. A given water-works system has a given capacity, and every consumer of water, whether it be the municipality itself or the private consumer, appropriates a certain proportion of that capacity, and each by his proportional consumption hastens the date when an enlarged system will be required. Each, in proportion to his use of water, consumes fuel, and chemicals for water treatment if these be used, and gets a proportional benefit from every expenditure required to maintain or operate the water system. Should not each consumer, therefore, pay for the service received exactly in proportion to the amount of the service he demands?

As to the relative merits of the methods in vogue in assessing water rates, it may be said at the outset that the front-foot charge in use in Baltimore and other cities has the least to recommend it. As our lawyer friends say, "It is immaterial and irrelevant." There is no possible mental process by which any relation may be established between foot-frontage and the consumption of water. It would be as intelligent for the real estate man to buy property by the yard, or for our wives to buy butter by the inch.

Of the flat-rate methods of charging for water, the fixture rate is the most scientific and the only one which even approaches the volumetric measurement of water. By fixture rate I mean a charge of so much for each faucet, each bathtub, each closet, each urinal, etc., but even this method is unscientific, as the use of water from the fixtures varies enormously with different consumers. It would be just as intelligent to sell milk at a faucet at so much per faucet without specifying the length of time for which the faucet could remain open for a given sum of money. One could hardly conceive of selling milk on this basis, everyone is so accustomed to buying by volume.

The amount of water which the consumer pays for a given sum with the fixture rate depends upon the whim of the water consumer. It is possible, where two houses are equipped with identical plumbing fixtures, for one consumer to use twice the amount of water used by the other. It has the great disadvantage of restricting the installation of liberal plumbing equipment be-

cause the house owner will restrict the number of outlets to a minimum in order to reduce his water bill. It works a serious injustice to the man with ample plumbing fixtures who is economical in the use of water. On the other hand, it reacts to the advantage of the man with one faucet who allows water to run to waste and who may use more water through the one faucet than his neighbor with six bathrooms and tight faucets.

The great evil of all flat charges is that they place no premium whatever upon the restriction of waste. The flat rate, therefore, tends to increase the capital outlay for water improvements as well as to increase the operating expense of the water department, both of which are necessarily proportional to the amount of water consumed.

The water-works system which attempts to work on a flat-rate schedule cannot possibly do approximate justice to its consumers, even those consumers who have the same rates applied to the same fixtures. The flat rate is a boon to the wasteful user of water and works great injustice to the consumer who uses wisely but prevents waste. The idea that the meter restricts the legitimate use of water is entirely erroneous. Water is such a cheap commodity that no one hesitates to use it freely for legitimate purposes. At the average rates paid in this country, water sufficient for a bath costs but 0.7 cents. The average bill for water for the average family in the United States does not amount to more than \$15 per year, or 4.5 cents per day. It is the cheapest of all the necessities of life supplied to the residents of towns and cities.

The meter system also has the advantage that it does not restrict the consumer in the installation of adequate plumbing equipment as the fixture rates do, because the consumer soon learns that the amount of water consumed is not proportional to the number of fixtures installed so long as the plumbing is kept from leaking. All that the meter does is to restrict the needless waste which occurs on all unmetered systems.

Imagine for the moment what would be the size of the electric generating stations and gas works supplying the larger cities of this country if these commodities were sold on a flat-rate basis. If these com-

modities were sold on any other basis than the meter basis, the plants required would have reached such proportions by now that the fixture rates would be so high as to

make the cost of the service prohibitive. This is precisely what is going to happen in the collection and distribution of water unless meters are generally adopted.

## An Improved Guard-Rail Design for Highways

Pitch Pine and Washington Fir Make Substantial Buffers for Unruly Autos

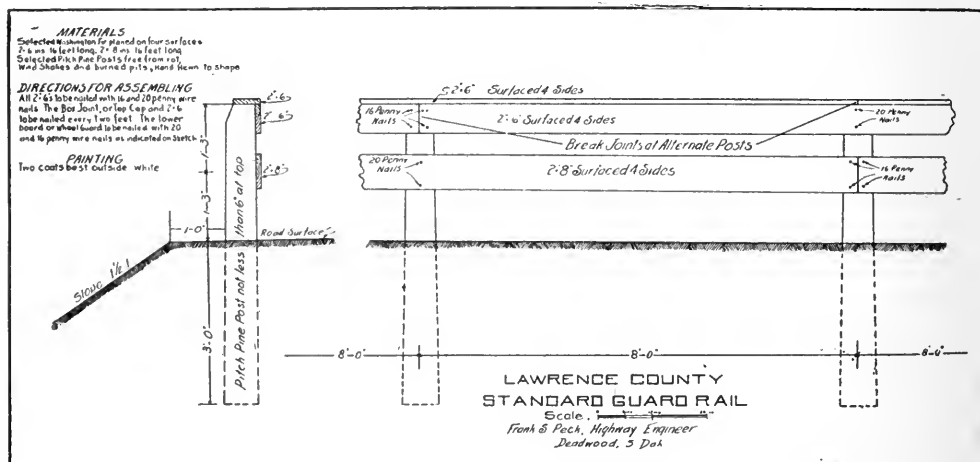
**T**HE wooden guard-rails used on many state and Federal Aid roads are built in such a manner that they act more as a guide than as a protection for fast-moving vehicles.

The design for the guard-rail used in Lawrence County, S. Dak., and described by Frank S. Peck, Highway Engineer of Lawrence County, in a recent issue of *Western Highways*

but no car or truck gets through.

By glancing at the accompanying plan, it will be seen that the 8-inch plank forming the lower part of the guard-rail is so located that it will protect the hub from hitting the post, and the hub will slide along the fence without very much damage to the car and with only a minor damage to the fence.

Lawrence County is situated in one of the



Builder is not entirely new, but has some features of safety that appeal particularly to the traveling public. The rigid construction of the guard-rail gives a feeling of security.

This type of guard-rail has been in use in Lawrence County for more than two years and has proved to be fool-proof, as hundreds of autos and trucks have hit the fence and left their scars on the 8-inch hub-guard plank without going through the fence. It is true that a plank and sometimes a post is broken,

National Forests where there is a bountiful supply of pitch pine, which is used for the posts. These posts are nearly solid rosin and will last from 25 to 30 years without replacing. Oregon or Washington fir is used for the boards and is superior to native pine, which is too brittle. The boards are selected and are clear and free from knots, rot and wind-shakes. The guard-rail costs from 40 to 45 cents per lineal foot, erected and painted with two coats of best outside white paint.

Largely because of the indifference produced by constant contact, most citizens do not realize fully how crude and unfinished their cities are and how inexpensively and easily they could bring about the very best of living and working conditions. The small city or town should begin now to avoid the usual pitfalls experienced by larger cities, and the larger city should begin before it becomes a metropolis.—FRANK E. WETHERELL.

# Road Accounting in Victoria County, Ontario, Canada

By E. L. Miles

County Engineer and County Road Superintendent, County of Victoria, Ontario

**T**HE system of road accounting as applied to the superintendent's office can only realize its greatest value when sufficiently detailed for a cost analysis. A cost analysis cannot be effectively applied as a basis of information unless it is accompanied with full details. Cost records are, in fact, the library to which the superintendent turns for the essential information regarding his work, and the more complete these records are, the more easily they are digested.

## The Value of Cost Accounts

It has been said that records of this kind are not worth the trouble and time it takes to prepare them, because of the varied circumstances under which the work is operated. The greatest value, however, comes to the one who prepares the details, as he is able to pick up the weak points in the organization and prepare himself for more efficient methods later on. Nor should that information be closely held in the superintendent's office, but rather given to the foreman in charge of the work, in order that he may see the results of the costs when compiled. Foremen thus given a chance to report upon their work often add valuable information which would otherwise be lost. Reliable information must be accompanied by a full history of the work, in order that the truth be known why Foreman Jones is building a similar road for \$1,000 per mile less than Foreman Smith. Foreman Jones may be a better man than Foreman Smith in his methods of organization, in which case the superintendent does not need a cost sheet to draw this fact to

his attention, although he may need it to prove his argument.

There are no hidebound rules and regulations for the guidance of superintendents in compiling their cost records, as a means of accurate information, yet if a superintendent understands the information he has, and is able to digest it, he will be able to judge future work in a more intelligent way.

Cost records intelligently kept, so as to bring out the essential parts of the work, are used to check up the organization, to ascertain the economical limits of haul, of unit prices, of consumption, and other things which eat into the effectiveness of the work. Dribbling losses can be corrected from time to time, and the superintendent is always protected from irregularities if he systematically watches his cost sheets.

To illustrate this argument, let us take up the question of hauling, which is one of the most important items in road building. Given a piece of road to build, the average distance from the railway siding to the work is, say, one mile. What is the economical distance that field stone can be hauled and run through a crusher in competition with imported stone? Theoretically, this can be figured in the office, but unless a close check is kept on the work, say, once a week, many dollars are wasted either in cutting out the crusher too soon, or not soon enough. Moving material is not a proportional item; that is, if it costs \$1 to move a cubic yard 1 mile, it does not mean that it costs \$5 to move a cubic yard 5 miles. It is surprising, if not educational, to note

## Accounting Necessary for Good Annual Reports

The compilation of an annual report is the most instructive work that the superintendent can carry out individually. In gathering the data, he not only finds the discrepancies in his office system, but is able to view the results of his year's operation collectively, and can determine on some improvements for the season to come. If complete records are systematically kept, there is no particular hardship attached to the submission of a report on any part of the work.

the difference between detailed estimated costs and actual costs, from the cost records.

Estimating has been described as an art, but it may be reduced to a science. Prices of labor and material vary from time to time as do freight rates, and it is therefore necessary that each unit shall be separated in order that prices may be applied to new quantities. At any rate, cost records are concurrent with the times and soon become obsolete unless accompanied by a complete history of the work. Construction engineers are notorious for underestimating work and while no one believes this "art" to be intentional, it does illustrate the lack of sufficient information.

### The Victoria County Cost System

As the writer is more familiar with the cost-keeping system in use in the county of Victoria, perhaps it would not be amiss to describe that particular system in detail. First of all, we must have a reason for the system, and secondly a determination to carry it to its final conclusion. This suggests four subdivisions:

- First, systematic collection of all the information
- Second, regular payment of accounts and distribution of charges
- Third, study of costs as the work progresses
- Fourth, an annual report to the County Council

Our reason for the system is that we have purchased about \$50,000 worth of road machinery, and are therefore committed largely to the "day labor" method of construction. Whether or not we are getting beneficial results as against the more popular "contracting" methods, is illustrated through our cost sheets, backed up by systematic collection of all the information.

When a piece of construction work is authorized by the Road System Committee, a "Cost Record" sheet is placed among the accounts on the file, not in a book, for the particular road in question, and identified by the location, as "Lot—Con.—Twp," as well as the historical name, as, "Hillhead Line, Agnew's Swamp, Kelly's Hill." We then determine what information we want on that particular job, such as grading, material, freight, metaling, etc., without any consideration for the department returns, and then instruct the foreman to in-

clude these classifications when he submits his pay list, etc. These details are totaled for the use of the Treasurer in making entries for the Department returns.

When the information desired for the work on hand is decided upon, the bills commence to come in, submitted under the following regulations (extract from Superintendent's Annual Report 1922):

*Time books.*—Time books are supplied by, and remain the property of, the Road System Board. They are numbered and recorded in the office of the Superintendent, to whom they must be returned when filled in, or at the end of the season.

Time books are to be entered at the end of each day, and in case of dispute with an employee, the foreman must always be able to take his oath clearly and conscientiously that his time book shows the number of hours worked on each day, and that the record was made on the day shown.

*Pay lists.*—Pay lists are to be submitted to the Superintendent's office on the forms provided, at the end of each week. They shall be compiled, distributed and presented for endorsement to the County Road System Committee by the Superintendent every two weeks and duly paid. Names and initials must be correctly given, and special attention paid to employees' names when one or more members of a family are shown.

The distribution or amount of money to be charged to each road, township, job and classification is most important and should be accurately recorded.

Every foreman is expected to examine the checks received before being handed to the men, and in case of an error, the check should be immediately returned for correction. It is desirable that every check should be presented for payment as soon as possible, and not held by the owners, as the accounting department has considerable trouble and annoyance with outstanding checks.

*Field accounts.*—The superintendent, general foreman, foreman in charge of work, and engineers in charge of machinery are the only persons authorized to order or receive goods on the county's account. In case of doubt, inquiries must be made at the Superintendent's office.

Accounts shall be rendered monthly, no matter how small, in order that they may be checked, and charged intelligently to the work to which they belong. They must be submitted in duplicate, and a carbon copy for this purpose is suggested.

Accounts must be certified to by the authorized person ordering the supplies, before they are sent to the Superintendent's office. The best way to do this is to have the foreman o.k. and charge each purchase by signing the counter slip at the time of delivery. All such counter slips or orders shall be attached to the account when rendered. In case of delivery



by truck, the counter slip should be certified to by the foreman and retained by the truck owner and attached to the owner's account at the end of the month. In this case, the owner's account must be presented before the dealer's account can be checked and paid, unless he wants to get duplicate receipts from the foreman. The accounts as presented are duly checked and classified in the Superintendent's office, using a rubber stamp for a guide as follows:

DISTRIBUTION					
ROAD	CLASS	MUN	JOB	DIS'N	CHG.

The clerk then enters the account upon a distribution sheet, which in turn is brought before the Road System Committee for sanction and passed to the Treasurer for payment. A duplicate copy of everything is retained in the Superintendent's office and these are filed together under the date of the committee meeting. These accounts are then entered on their respective cost sheets, and when done, the Superintendent can refer to them for his information.

Now suppose John Smith comes into the office and complains that he has not been paid his wages or account, or that the check received is for the wrong amount. He states where he was working, or to whom he supplied the goods, and in a very short time, through the assistance of the cost sheet which gives the date of the committee meeting, the numbers of the account, his name and the goods supplied, his original account can be turned up, and satisfaction be given to him as to its disposal.

During 1922, 4,631 checks were issued in payment of wages and accounts, and there are, of course, many inquiries as to the number of hours allowed, rates, etc., and it is therefore, necessary to have everything in detail and accessible, especially when operations are going on over 250 miles of road. You will notice from the regulations regarding the submission of accounts

that the "Order Book" is dispensed with as far as possible. Suppose Foreman Jones wants 50 sacks of cement, and he writes an order for that amount to a certain dealer. When the truckman calls, he finds that the dealer mentioned hasn't any cement left, and he goes to another who happens to have only 25 sacks. The order is left to be changed, of course, but it isn't always so treated, and the foreman and Superintendent have difficulty in getting things to check up. Besides, the order book is always in a coat pocket in some other place when wanted, and only about half the items are covered.

Our system is to have the original counter slips certified to in the field by the foreman and classified when the goods are delivered, and the counter slip is then retained by the dealer and attached to the bill when it is submitted to the office. Checking is therefore very simple, and bills are not delayed by being carried around in somebody's pocket awaiting signatures. Deliveries are usually made by truck drivers in town, who in turn submit their bills in detail showing just what material they hauled and where it went to, so this in turn is another check on the dealer and the foreman.

Having now completed the work, the foreman is directed to collect all his bills and send them in for payment, and at the same time he is asked to submit a report, which first of all gives the history of how he carried out his work, and any peculiar method adopted. He also fills in a form as shown on the following page.

When the extent and history of the work is received, the Superintendent adds the actual detail cost to the report, and makes his deductions. If he finds discrepancies, high costs, or even low costs, or anything of that nature that attracts attention, he immediately holds a conference with the general foreman and the foreman in charge of the work, to find out the reasons of the overcharges, or even the unexpected good showings—information which is used by all in the planning of the next job to be undertaken.

In using this or any other system of cost keeping, the essential point to bear in mind is not to overdo it, or try to collect useless information. First of all, try to keep a

### COUNTY OF VICTORIA ROAD SYSTEM

#### COST RECORDS

#### MAINTENANCE.

FILE NO. \_\_\_\_\_

TOWNSHIP \_\_\_\_\_ ROAD NO. \_\_\_\_\_ LOCATION \_\_\_\_\_

ACCOUNTY- \_\_\_\_\_ DISTRICT \_\_\_\_\_

DATE \_\_\_\_\_

1

### COUNTY ROAD SYSTEM-VICTORIA

PAY LIST of Persons employed on Road No. \_\_\_\_\_ Township \_\_\_\_\_

From \_\_\_\_\_ 19 \_\_\_\_\_ To \_\_\_\_\_ 19 \_\_\_\_\_ inclusive

No.	NAME	How Employed	Total Hours	Rate per hour	Total Amount	Debit	Credit	Amount of Check	Remarks or Signature
2									

CERTIFIED CORRECT \_\_\_\_\_

COUNTY ROAD SUPERVISOR \_\_\_\_\_

### COUNTY ROAD SYSTEM-VICTORIA

#### DISTRIBUTION OF ACCOUNTS

TO WHAT ORIGINALLY	CLAIMANT	DISTRIBUTION	AMOUNTS	TOTAL OF AMOUNTS	CREDIT NO.	TOWNSHIP NO.	REMARKS
4							

DATED AT LINDSAY, this \_\_\_\_\_ day of \_\_\_\_\_ 1923

Certified Correct \_\_\_\_\_

Payment Authorized \_\_\_\_\_ County Roads Superintendent

Chairman County Road Committee \_\_\_\_\_

County of Victoria  
ROAD SYSTEM

ROAD NO. \_\_\_\_\_

CLASS \_\_\_\_\_

MUNICIPALITY \_\_\_\_\_

To \_\_\_\_\_ Dr. job \_\_\_\_\_

DISTRIBUTION \_\_\_\_\_

ESTIMATE NO. \_\_\_\_\_

3

### REPORT OF MAINTENANCE FOREMAN FOR WEEK ENDING \_\_\_\_\_ 1923

\*DAY OF MONTH \_\_\_\_\_

NAME	HOW EMPLOYED	DATE	TIME	REMARKS
5				

### REPORT OF BRIDGE AND CULVERT FOREMAN FOR WEEK ENDING \_\_\_\_\_ 1923

DATE OF MONTH \_\_\_\_\_

NAME	HOW EMPLOYED	DATE	TIME	REMARKS
6				

### REPORT OF CONSTRUCTION FOREMAN FOR WEEK ENDING \_\_\_\_\_ 1923

DATE OF MONTH \_\_\_\_\_

NAME	HOW EMPLOYED	DATE	TIME	REMARKS
7				

### COUNTY OF VICTORIA ROAD SYSTEM

#### Bridge and Culvert Record—Road No. \_\_\_\_\_ 1923

Location	Span	Material	Type	Length	Width	Height	Remarks
9							

### COUNTY OF VICTORIA ROAD SYSTEM

#### COST RECORDS

#### CONSTRUCTION

FILE NO. \_\_\_\_\_

TOWNSHIP \_\_\_\_\_ ROAD NO. \_\_\_\_\_ LOCATION \_\_\_\_\_

ACCOUNTY- \_\_\_\_\_ DISTRICT \_\_\_\_\_

DATE \_\_\_\_\_

8

Location	Span	Material	Type	Length	Width	Height	Remarks
9							

Type .....	Road No.....	
Lots .....	Con.....	Twp.....
<i>Extent and History of Work</i>		
Total length of road graded.....		Feet
Total length of road metaled.....		Feet
Width of graded road.....		Feet
Width of metaled surface.....		Feet
Area—graded surface.....		Sq. yds.
Area—metaled surface.....		Sq. yds.
Depth of metaled surface.....		Inches
Depth of ditches.....		Feet
Volume of graded material.....		Cu. yds.
Volume of metal placed on road.....		Cu. yds.
Number of loads of metal placed on road.....		Number
Average total length of haul of metal.....		Miles
Date started grading, .....	Stopped, .....	Working days, .....
Date started crushing, .....	Stopped, .....	Working days, .....
Total.....		

Average number of loads of metal hauled per day.....

*Detail of Cost.* (To be filled out in Superintendent's office)

Grading .....	cu. yds.	Rate, \$.....	\$.....
	cu. yds.		
Metal .....	loads	" \$.....	\$.....
	cords	" \$.....	\$.....
Crushing .....	"	" \$.....	\$.....
Hauling .....	"	" \$.....	\$.....
Spreading .....	"	" \$.....	\$.....

*Note*—Any other unit of measurement or description of material can be used.

<i>Results</i>			
..... Miles graded.....	Rate, \$.....	\$.....	
..... Miles metaled.....	" \$.....	\$.....	
..... Sq. yds. graded.....	" \$.....	\$.....	
..... Sq. yds. metaled.....	" \$.....	\$.....	

Total rate per mile, .....

good check on the organization, and, second, procure sufficient information so that you can explain the entire transaction if called to do so, from facts and figures.

Culverts and bridge records are also made by the foreman as shown, and in addition to this, no structure is placed without instructions from the office. In this way the complete history and cost is kept.

At the end of the season, each maintenance foreman is asked to fill in a form covering his season's work, as well as another form covering his equipment. These returns are compiled, and submitted to the interested parties. Usually each reeve receives a copy showing the number of miles of road constructed, number of miles

graveled, number of culverts placed, etc., as well as a compilation showing the total cost of each individual piece of work duly classified for each township.

In conclusion, it might be said that the compilation of an annual report is the most instructive work that the superintendent can carry out individually. In gathering the data, he not only finds the discrepancies in his office system, but is able to view the results of his year's operation collectively and can determine on some improvements for the season to come.

Looking at the annual report from another point of view, it might be said that the county council

are entitled to know the history of the year's operations, and at the same time be coached as to the economics of highway building.

This year, the writer has divided his Annual Report into three headings:

1. Economics of Highway Improvement
2. Operation Results for 1922
3. Rules and Regulations for the use of Foremen, and as an appendix, maps, tables, cost records, etc., are attached

If complete records are systematically kept, there is no particular hardship attached to the submission of a report on any part of the work.

**ACKNOWLEDGMENT.**—From a paper read before the Ninth Annual Conference of Road Superintendents, Toronto, Canada.

## An Economical Creosoted Timber Bridge

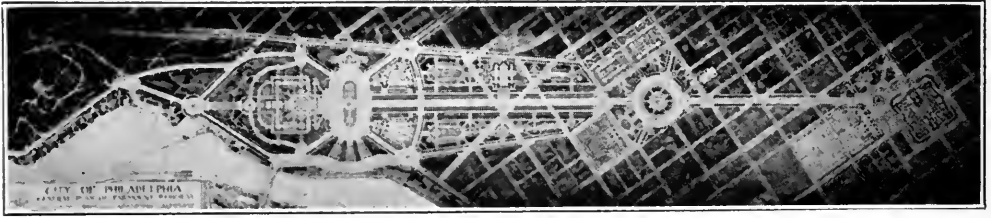
**A** PRACTICALLY standard type of pile-trestle bridge spanning an arm of Sodus Bay in Wayne County, New York, constructed throughout of timber treated with 12 pounds of creosote per cubic foot, with the exception of the guard-rails which are painted white, is of special interest.

This bridge, which is 175 feet long, 22 feet in width over-all, roadway 21 feet in the clear, was constructed by state forces

under the supervision of Division Engineer William M. Acheson of the New York State Highway Commission, and required 60 days for completion.

The roadway on which this bridge is located is paved with 1,670 square yards of creosoted wood blocks, laid on 4 x 8-inch treated matched flooring, and carries unusually heavy traffic, especially during the tourist season.

—Wood Preserving News.



# Fairmount Parkway---A Notable Correction of William Penn's Plan

**By Andrew Wright Crawford**

**Executive Secretary, Fairmount Park Art Association and City Parks Association, Philadelphia**

**W**ITH the completion of the Fairmount Parkway opening, Philadelphia has made a fundamental correction in the old "gridiron" city plan, introducing a much-needed diagonal thoroughfare from the City Hall northwestward. As a result, Fairmount Park now begins in reality, though not in name, at the City Hall, located at Broad and Market Streets, the center of Philadelphia. The Parkway creates three great plazas and provides for three groups of public and semipublic buildings, one of which will be an unequalled concentration of art buildings. The Parkway is 6,300 feet in length, with a varying boulevard width of from 140 to 250 feet and represents an expenditure apart from its accompanying construction of public buildings, of more than \$17,000,000.

The opportunity afforded was unique. The southeastern end of Fairmount Park was marked by Fairmount Hill, on the top of which the Fairmount Reservoir stood. This has been abandoned, and on that site, commanding a view of the entire length of the Parkway, and of two reaches of the Schuylkill River, the Philadelphia Museum of Art is now being built, at a cost which, it is stated, may reach \$8,000,000. The axis of the Parkway leads directly from the center of the main façade of this building to the City Hall.

In front of the Museum, at the foot of Fairmount Hill, is to be constructed the Fairmount Plaza, 400 feet in width and about 900 feet in length. As the Parkway leaves the Plaza, it will be flanked on either side by new buildings, one of which is to

be the Pennsylvania Academy of the Fine Arts, and the other the Pennsylvania Museum and School of Industrial Art.

Another interesting feature of the Parkway will be "The Parkway Gardens," which are to be developed in an area of four blocks on the southeast side of the locations for the Academy and the School of Industrial Art. Ground for only one building, a new Episcopal Cathedral, has been allotted in this section.

Logan Square, one of William Penn's original parks, has been selected as the center of another important group of buildings. In addition to the Roman Catholic Cathedral, the Academy of Natural Sciences and the Wills Eye Hospital, already located there, appropriations have been authorized for the construction of the Central Library, which is now almost half completed, "Victory Hall," to be erected as a war memorial, and a new Municipal Court building. The Library and the Municipal Court building are on opposite sides of the Parkway as it leaves the northwest corner of the Square, thus constituting an elaborate entrance to "The Parkway Gardens." Logan Square has been embellished by a beautiful memorial fountain.

The Parkway between the Fairmount Plaza and Logan Square is 250 feet wide. Logan Square extends from Twentieth Street to Eighteenth Street, the dimensions of this open space being 950 feet by 730 feet.

Between Eighteenth Street and Sixteenth Street the Parkway is 140 feet wide, and then it again broadens out into a somewhat

irregularly shaped plaza of about 1,000 feet in length and 500 feet in width, north and northwest of the City Hall. It is hoped that this Central Plaza may some day be enlarged by moving the Broad Street Station of the Pennsylvania Railroad 100 feet west of Fifteenth Street, the façade of the new station turning and extending along the southwest side of the Parkway. It is also possible that the railroad may be depressed, as has been done in New York City. The Plaza will then ultimately become a great center of public and semipublic buildings.

Doubtless, those who are not familiar with this project will wonder what it has cost and how the money has been raised. About 1,000 properties have been affected and as many buildings removed. For the ground for the Parkway, over \$17,000,000 has been expended. This amount and funds for the construction of the Art Museum, Library and Municipal Court building,

were made available as the result of votes by the people on bond issues. That is not the least remarkable thing about the accomplishment. The question of the issue of bonds for the undertaking was submitted on a number of occasions over a period of a dozen years, and in every case a large majority favored the issue.

The magnitude of the Fairmount Parkway development is evident by a comparison with other street-opening and widening undertakings which have been regarded as notable. The Kingsway in London is a mile in length, and only 100 feet in width, and is merely a much-needed street. Rio Branco, of Rio de Janeiro, opened in 1903 at a cost of \$7,000,000, is 6,500 feet long, but only 108 feet wide, and but 600 buildings were demolished in preparing the way. The Seventh Avenue extension and the widening of Varick Street in New York City is chiefly a widening, and it is only



ROUTE OF FAIRMOUNT PARKWAY BEFORE DEVELOPMENT WAS STARTED



VIEW FROM THE SAME POINT SIX YEARS AGO, SHOWING TWO SECTIONS OPEN

A recent photograph of the completed parkway is reproduced on the front cover of this issue

100 feet wide, without any grouping of buildings; it is a much-needed roadway, with none of the other characteristics of the Fairmount Parkway. The widening of Michigan Avenue in Chicago is merely a widening, not a diagonal cutting, as is the Parkway, and has a maximum width of only 140 feet, while the Philadelphia Parkway is of that width at its narrowest point, and for two blocks only.

It is its threefold character of affording opportunities for several great groupings of public buildings; of bringing Fairmount Park to the heart of the city; and of creating a great traffic diagonal thoroughfare that makes the fact that the Parkway is now in use of notable interest as one of the great achievements in city planning in America. It is an achievement well worth the study of every visitor to Philadelphia.

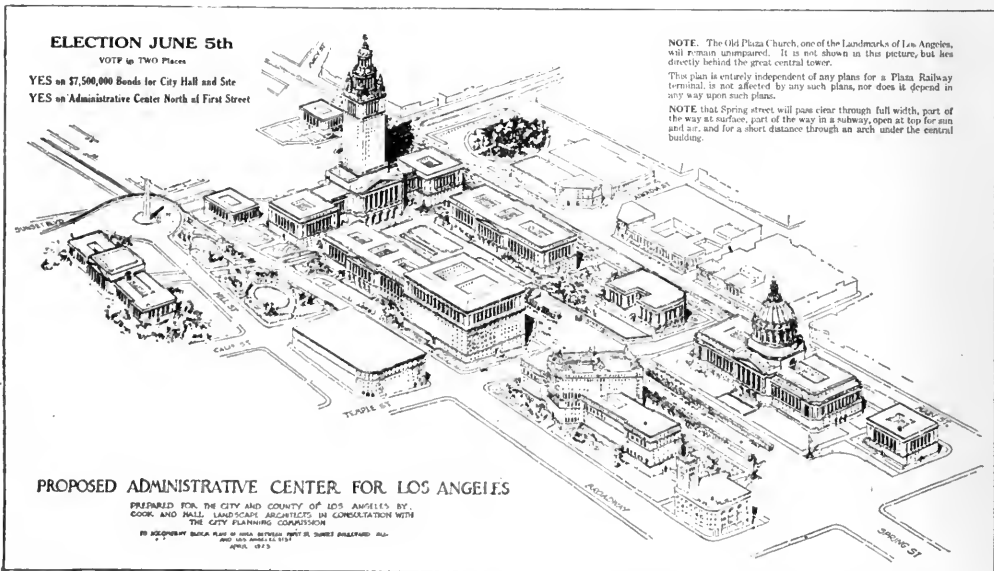
## Los Angeles Votes \$26,500,000 of Bonds for New Improvements

**T**HE future development of Los Angeles along progressive lines has been provided for, in the approval at the municipal election on June 5 of bond issues totaling \$26,500,000. Of six items submitted to the voters, only one was defeated—\$35,000,000 for power-plant development. This received a majority vote, but failed of the necessary two-thirds.

The proposal to erect a new City Hall, on a site at the north end of the city, and to make it a feature of a future administrative center, carried with a sweeping majority, and the bond issue of \$7,500,000 for the land and building was approved. The accompanying illustration of the proposed City Hall and Administrative Center is reproduced from a report of the City Planning Association of Los Angeles, recommending this plan. This report, printed in the

form of a large circular, was distributed among the citizens prior to the election.

The children of Los Angeles will have additional playgrounds to cost \$1,500,000, the vote on this issue being practically unanimous. The approval of \$2,000,000 viaduct bonds makes possible the completion of the viaduct and grade crossing elimination program now under way, which it is hoped will overcome many of the city's traffic difficulties. An expenditure of \$15,000,000 for Los Angeles harbor improvements was authorized, to insure the continued rapid development of the harbor. Additional land for the new public library building site, giving an unobstructed view from the west of the new building now being erected on Normal Hill, will be secured with the \$500,000 voted for that purpose.



**REPRODUCTION OF PART OF A LARGE FOUR-PAGE FOLDER USED IN THE CAMPAIGN FOR LOS ANGELES' ADMINISTRATIVE CENTER**

# Water of Infiltration in Sewer Systems

Difficulties Experienced in Iowa and How They May Be Overcome

By H. V. Pedersen

State Sanitary Engineer, Des Moines, Iowa

**E**XCESSIVE infiltration in sewer systems in Iowa has given rise to certain problems for which few engineers have really taken time to work out satisfactory solutions. Theoretically, it is very easy to exclude all water by putting in underdrains, but, practically, it is difficult. Out of the total number of 190 municipal sewage treatment plants in Iowa, 122 are equipped with the shallow Cameron type of septic tanks. Many of these tanks are of just sufficient size to take care of the needs of the town. There are some exceptions where the plants are much too small, and some where the tanks may be plenty large enough for years to come, but the great majority are laboring even in normal times under the heavy load forced upon them. Every time it rains, and more especially in the spring, the water that finds its way into the sewer systems through infiltration is excessive for the good operation of the plant, and the tank tends to unload its contents onto the filters, where it causes ponding by reason of the surface mat.

## Causes of Infiltration

Excessive infiltration may be due to: (1) failure to lay the pipe on a proper bed or to cement the joints as specified by the engineer; (2) although the work is done according to specifications, the engineer may have failed to judge the conditions and to provide for suitable construction; (3) all the precautions may be of no avail and excess water find its way through seemingly water-tight joints into the sewer.

There is little excuse for the first cause. The contractor should be made to understand that if the sewer joints are not made as tight as possible or a safe foundation provided for the pipe, he will not be paid for his work. Unfortunately, many times contractors have gone along with construction, allowing their men to do inferior work and then make a big bluff at the end of the job. Men trained to lay pipe often lack intelligence, do not realize the

trouble caused by infiltration and do not take pains, and in some cases actually try to deceive the inspector and go as far as to boast about it later.

Competition in bidding often makes it impossible for the contractor to do good work and to break even. Naturally, a contractor wants to make money on the job. The town awards the job to the lowest bidder, makes the contractor slice and cut his bid in order to get the job, and then expects first-class work. Competition is a good thing, but all towns and all engineers must realize that a sewer job should be let at such a price as to allow the contractor to do first-class work and make a profit.

The second cause is often more difficult to determine and may in a way be more excusable. It is not possible to test every foot of a proposed sewer system, and even if a set of specifications include clauses requiring suitable foundations, it is often the fault of good judgment whether or not the particular grade of sand makes a good foundation.

The third cause is the hardest to understand and to overcome. It seems on first thought entirely improbable that if all the necessary precautions known are taken, the sewer will still leak. A case illustrating this is the sewer laid on a rather steep hill in a town in Iowa. The ground was a hard yellow clay and occasional stone. As the trenching machine was just rounding the top of the hill, it struck a sand vein and without a moment's notice water began to wash in sand and dirt, and before the men in the trench could move, they were standing knee-deep in water. It took a week to lay the pipe a distance of 20 feet through this vein. The trenching machine had to be abandoned and hand work used. Everything a man could think of was done to lay the tile to exclude the water, but upon final inspection it was learned that the pipe on this hill flowed one-quarter full of water in spite of all precautions. Water from the



sand vein had flowed along the pipe, and although the joints at the sandy place were water-tight, water was seeping through the crevices far below, where less precaution had been taken to secure tight joints.

Even in its rules and regulations the Iowa State Board of Health admits that most sewers are bound to leak, when it specifies that a system where the infiltration is not more than 1.6 gallons per linear foot a day for the entire system is considered good construction. The theory has been advanced that if a new sewer system leaks it will tend to tighten up as it grows older. There may be a tendency for some joints to fill with dirt and sand and thereby exclude the water, but it is my opinion that if a sewer leaks when it is first laid, it will always leak.

### Overcoming Infiltration

A little extra water in a sewer which discharges directly into a stream does no particular harm, but extra water from infiltration in sewers where the sewage is treated has many bad effects. Take, for instance, a case where a septic tank has gone all winter without cleaning. As long as it is cold, no one wants to clean it out, and it is neglected as long as possible. A warm day melts the snow, or a heavy rain sets in, which penetrates the ground, and water finds its way into the sewer. This water flowing into the shallow tank stirs up the light, sludge-like particles and carries them out onto the filters, which in one day may put them completely out of commission. There has been some talk of using cast iron pipe for sewer construction. This method would certainly reduce infiltration, but whether the extra cost of construction would make up for the reduced trouble at the treatment plant or not is an economic question. It is certain that in some sandy places it will be well worth the engineer's time to consider whether or not the use of cast iron pipe is cheaper in the long run.

Some use has recently been made of sewer-joint compounds in place of cement. The first experiments with these did not prove very satisfactory, but the compounds on the market to-day seem to be giving

satisfaction. Present-day methods of making cement joints do not secure water-tight joints, and if compounds are proving satisfactory, they should be adopted by every engineer. It is certain that if compounds will prove durable and if tight joints can be secured under all conditions, this method of sewer construction should be universally adopted even if it costs from 10 to 15 cents per foot more than cement joints.

### Relative Effects of Infiltration on Septic Tanks and Imhoff Tanks

The troubles from excess infiltration are more noticeable in the Cameron type of septic tank than in the Imhoff tank. It has been found that the installation of a larger Imhoff tank than would ordinarily be required if there were no excess infiltration is one way out of the trouble usually experienced. The deeper the Imhoff tank, the less trouble. More use should be made of the two-story tank, and less of the shallow type of tank, except where it is absolutely necessary to do so.

### Use of Overflow Weirs

The remedies suggested for new systems do not, however, relieve the troubles of plants now in operation. Several of the plants in Iowa which have given trouble have been provided with a shut-off valve that governs a by-pass line. This may seem to solve the problem, but most of the plants are located outside of the town, and it is absurd to believe that when it rains at night a caretaker will rush out to the plant and open the valve to relieve the tank. In order to eliminate this human factor, it is best to install an overflow weir. An adjustable weir should be so placed in a man-hole near the plant that when the pipe flows above a certain height it will overflow into a by-pass line, thus relieving the treatment plant of excessive water. It is far better to allow the water to escape directly into the stream during a storm, when the sewage is most dilute, than to put the treatment plant out of commission in trying to force all of the weakened sewage through it.

ACKNOWLEDGMENT.—From a paper read before the Fifth Annual Meeting of the Iowa Engineering Society, 1923.



# Planning a Municipal Hospital for a Small City

By S. S. Goldwater, M. D.

Director, Mount Sinai Hospital, New York City; sometime Municipal Hospital Consultant to New York, Cleveland, and Newark, N. J.

THE hospital problem of a small city or town is in one sense more difficult than that of a large city, for in a small city it may be necessary that a single institution assume the entire responsibility for the care of the sick, while in a large city the load is invariably divided among several. Before considering a hospital program for a small city, it will be helpful to glance at conditions which affect the hospital policy of the larger municipalities.

The hospital which is supported by voluntary contributions has become a characteristic American institution. With the aid of public subsidies in some cities, without such aid in others, but everywhere in the greater industrial centers, such hospitals voluntarily assume the task of caring for the sick, especially for persons suffering from acute illness and for women in childbirth. Of some thirty thousand hospital beds in New York City, fully one-half are under private direction; but many of the so-called private hospitals derive part of their support from grants made to them by the municipality for the care of certain classes of cases.

Where public and private hospitals exist side by side, the private hospitals rarely undertake the care of persons suffering from chronic diseases, and still more rarely the care of those who are afflicted with contagious diseases. Both the well-to-do and the poor use the private hospitals

freely. It is commonly and, I think, correctly assumed that the conditions under which most of the private or non-municipal hospitals are conducted are not such as to meet the needs of persons in moderate circumstances who desire private or at least semi-private accommodations at moderate cost. So that even in cities where voluntary hospitals abound, there appears to be an unsatisfied need—an unsolved hospital problem that has an important social-economic bearing, and

to which municipal authorities may eventually be compelled to address themselves. But the peculiar and characteristic task of the municipal authorities in the larger cities is to provide hospital beds for patients ill with contagious and chronic diseases. In addition, they may be called upon to provide observation wards for mental patients, to offer either temporary or permanent shelter to

## Work Out Your Hospital Program, Then Go Ahead

Instances may be cited in which the starting point in a hospital program has been an arbitrarily determined sum of money. Rough estimates have been made of the cost of construction per bed (a most misleading term, owing to the varied nature of building programs), and the capacity of the hospital has thus been arrived at. Common sense often demands that one cut one's garment according to the cloth, but in the planning of a hospital this is a poor rule, for even if the amount of money available at the moment is insufficient to complete at once the hospital which the community needs, an ideal program may be formulated and may subsequently be carried out, step by step.

tuberculous invalids for whom the state has failed to provide, and finally, to maintain both hospitals and dispensaries for all the indigent sick whom the private hospitals fail to provide for or to reach.

Let us turn now to the smaller city, which is compelled to face its hospital problem alone, deriving no aid from private institutions. Such a community is confronted with a situation of great practical difficulty; and yet the problem is simplified by the fact that here the sickness of the community must be evaluated and handled in its entirety.

Sickness affects all classes, and so all classes logically enter into the program, the poor more than the rich, because of their relative helplessness when ill, but the well-to-do also in so far as their treatment in hospitals is unavoidable, as in accident and emergency cases; desirable, as in childbirth; prudent, as in contagious disease; and urgent, as in acute surgical conditions. For surgical treatment of a non-urgent character, the well-to-do patient may freely choose his hospital, and in this choice he is not confined to any particular locality; but so far as the poor are concerned, all kinds of clinical treatment necessarily enter into the local community program.

Sickness may be of many kinds: it may be acute or chronic; contagious or non-contagious; "medical" or "surgical"; and it may attack adults or children. This suggests the manner in which patients must be grouped.

An illness may present diagnostic difficulties which cannot be overcome except by means of well-equipped laboratories of microbiology, chemistry, or radiology. It may require many forms of treatment, and hence a large and varied technical equipment. Furthermore, disease is not necessarily incapacitating, though its treatment be essential; hence, dispensary as well as hospital facilities are an indispensable part of a community health organization. Besides wards and rooms for the sick, laboratories, an out-patient department or dispensary, and a variety of therapeutic facilities (of which surgical operating rooms are the most conspicuous and familiar), a hospital plant necessarily includes living quarters for nurses, resident physicians, and other hospital personnel, and the manifold equipment of a large household. The hospital has been defined as a hotel for the sick; it is that and a great deal more.

In determining the size of a hospital for a given community, the population to be served is the first element to be considered. Numbers, character, and rate of growth call for separate consideration. Relevant to this study are the economic resources of the community, the prevailing occupations and their health hazards, the manner in which families and individuals without families are housed, the sickness rate, the presence of groups possessing peculiar characteristics and customs (if a racial group is known for its unusually

high birth rate or for its employment of midwives instead of doctors, these factors should be weighed in planning the community hospital).

### **Five Beds for Each Thousand of Population**

The familiar rule of thumb which provides five hospital beds for general hospital purposes for each one thousand of the population is satisfactory as a point of departure. The figure named, however, assumes that mental cases and cases of chronic pulmonary tuberculosis are otherwise cared for, as in state institutions, and that cases of contagious disease are already provided for. A careful and expert local survey should precede the preparation of building plans for any community.

A scheme of clinical organization should be worked out in advance. Wherever possible, a school of nursing should be made an integral part of the hospital organization; in the case of very small hospitals this will necessitate affiliation with other hospitals. The basic clinical departments in a general hospital are those of medicine, surgery, pediatrics, and obstetrics, but specialism has nowadays become so vital a part of medical practise that even in small hospitals consideration must be given to the diseases of women, to diseases of the eye, ear, nose and throat, and to orthopedics, urology, venereal diseases, dermatology, neurology, and psychiatry. In smaller communities all of the "specialties" may not be represented by competent men among the local practitioners, and in the absence of a qualified chief, little would be gained by setting up a clinical department on paper, for it is men rather than space and technical equipment that determine the fruitfulness of a medical institution.

Both the immediate building program and the future expansion of the hospital must be considered. Clinical expansion may be anticipated along two lines: in the case of a hospital in which the various clinical specialties are originally either unrepresented or incompletely represented, the subsequent introduction of additional departments may be taken for granted; while in the case of a hospital which is completely organized at the outset, the probability of growth of the original clinical divisions must be reckoned with. Just now the demand for maternity beds is increasing throughout the country more rapidly than

the demand for hospital beds of any other kind; recent statistics show that 13 per cent of all of the children born in the United States are born in hospitals, but in certain communities the utilization of hospitals rises to 40 per cent of all cases. This brings up the problem of producing a flexible plan—a hospital so planned that it may be enlarged easily in whole or in part, and so that some, at least, of the space which is assigned to the various clinical divisions may be interchanged at will.

For the purpose of stimulating the building of small hospitals of an efficient character, *The Modern Hospital* recently instituted a competition among architects. Officials of small cities and towns may derive benefit from a study of the program which was prepared by the present writer and others for the guidance of the competing architects. The program follows:

**PROGRAM OF A HOSPITAL OF NOT LESS THAN THIRTY OR MORE THAN FORTY BEDS**

Single and double rooms.....16 to 20 beds\*  
 Women's ward.....4, 5 or 6 beds  
 Men's ward.....4, 5 or 6 beds  
 Maternity ward.....1 or 2 2-bed or 1 4-bed  
 Children's ward.....1 4-bed  
 At least two 1-bed rooms accessible to the wards for recovery and segregation.  
 Charting space  
 Medicine closet and sink  
 Pantry  
 Utility room  
 Linen closets  
 Janitor's closet  
 Supply closet  
 Verandas  
 Sterilizing room  
 Doctors' scrub-up room  
 Doctors' dressing room with lockers and toilet  
 Nurses' dressing room with lockers and toilet  
 Nurses' workroom  
 Anesthesia room

\*This program was designed for a typical small voluntary hospital; in a municipal hospital the proportion of single rooms would be much less.

Minor operating room planned to serve as an emergency or delivery room  
 Accident receiving and surgical dressing room  
 Birth room  
 Nursery  
 X-ray room  
 Clinical laboratory  
 Drug room  
 Waiting room for out-patients  
 Treatment room for out-patients  
 Clinical record room  
 Office  
 Reception room  
 Visiting doctors' consultation room  
 Locker and dressing-room with bath for non-resident nurses  
 Kitchen, including facilities for the preparation of special diets  
 2 bedrooms for male help, with bathroom  
 2 bedrooms for female help with bathroom  
 Boiler room and coal-bin  
 Small isolation cottage  
 Cold storage room  
 Storage for groceries  
 Officers' dining-room  
 Nurses' dining-room  
 Help's dining-room  
 Resident physician's bedroom and bath  
 Superintendent's bedroom and bath  
 Laundry  
 Clean linen room  
 Storage room for miscellaneous supplies  
 Lavatories and toilets as required

**The Question of Cost**

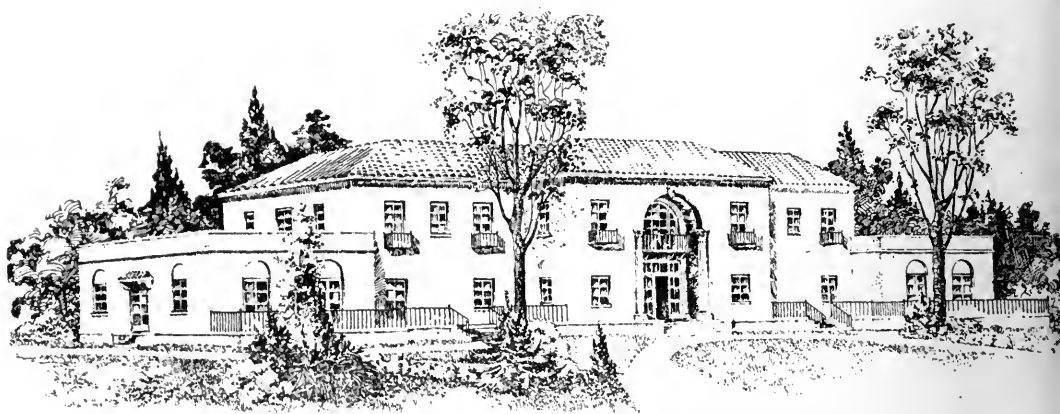
City officials and taxpayers are interested in the question of cost. A 40-bed hospital recently built on the lines of the above program was found to contain 397,000 cubic feet, including accommodations for nurses. As to the cost of fire-proof construction, recent estimates vary all the way from 46 cents and 48 cents to 60, 70, and even 80 cents per cubic foot. These figures cover fire-proof construction and the best type of sanitary interior finish. If funds are limited, the substitution of semi-fire-proof or non-fire-proof construction might be considered, *but only in case it is possible to place all of the patients on the ground floor.* The temptation to resort to cheaper types of construction is particularly strong at the



THE HOSPITAL DESIGN, BY BUTLER AND RODMAN OF NEW YORK, WHICH WON FIRST PRIZE IN THE MODERN HOSPITAL'S \$1,000 INTERNATIONAL ARCHITECTURAL COMPETITION

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THE SECOND PRIZE-WINNING DESIGN, BY JOHN J. ROTH, OF LOS ANGELES, CALIF.

moment, in view of the abnormal cost of building construction.

A hospital bond issue would have to cover the cost of the site, architects' fees, and movable equipment. An estimate of the cost of movable equipment cannot safely be made in general terms, although the formula of one dollar of equipment to ten dollars of hospital building is sometimes given and may, with reserve, be used as a guide. Under no circumstances should the mistake be made of reckoning the cost of hospital construction in terms of the cost of schoolhouses; cities which have formulated a financial program on this basis have subsequently been sadly disillusioned.

It would be impossible to analyze the cost of hospital maintenance or to enter into the details of administration without unduly prolonging this article. In conclusion, let me only say that if a municipal hospital is designed and conducted for the care of all social classes, it will be partially, and may be largely, self-supporting. Probably no city in America is unwilling to contribute something toward the medical and nursing care of its sick poor.

Reprints of the complete article on the five prize-winning plans are not available, but anyone interested can obtain them in the May issue of *The Modern Hospital* (of Chicago, Ill.) for 35 cents. Succeeding issues of the magazine contain reproductions of other plans submitted in the contest. These are reproduced with criticisms for their educational value.

## Institute of Government and Politics to Be Conducted at Columbia University by National League of Women Voters

**A** SCHOOL open to any person who wishes to attend, and who pays the fee of \$22 charged by Columbia University, will be conducted July 16 to 27 by the National League of Women Voters. This Institute of Government and Politics will have courses in General Problems in Popular Government, Efficient Law Making, City Government, the Merit System and the Budget as Aids to Efficient Government, and Popularizing the Teaching of Government.

The faculty will include the following well-known specialists:

Professor T. R. Powell, Columbia University; Harold W. Dodds, Secretary, National Municipal League; Professor Arthur Macmahon, Columbia University; Raymond Moley, Director, The Cleveland Foundation; Professor Lindsay Rogers, Columbia University; Walter J. Millard, Field Representative, Proportional Representation League; Professor A. R. Hatton, Western Reserve University; Dr. E. D. Graper, Columbia University; Dr. Luther Gulick, Director, National Institute of Public Administration; W. E. Mosher, National Institute of Public Administration.

Additional information can be secured from the Department of Citizenship Schools, National League of Women Voters, 532 Seventeenth Street, N. W., Washington, D. C.

## Town Forests in Massachusetts

**B**Y a vote at its recent annual town meeting to set aside a 70-acre park as a town forest, Great Barrington, Mass., became the nineteenth municipality in that state to establish such a reservation. Forty other towns in the state now have committees working on similar plans, from which action is almost certain to

result, as the movement is making great headway under the encouragement offered by the State Department of Conservation and the Massachusetts Forestry Association. The latter body has offered to plant 5,000 trees free of charge for any town which will establish a town forest of 100 acres or more.



THE FOSTORIA, OHIO, HIGH SCHOOL BAND, WINNER OF THE \$1,000 HIGH SCHOOL PRIZE IN THE NATIONAL SCHOOL BAND TOURNAMENT

# School Bands Hold Big National Tournament

By Patrick Henry

Secretary, School Band Contest Committee of America

**H**UNDREDS of thousands gathered along Chicago's lake front the week of June 4 to listen to what was considered the greatest school band tournament, in character, ever held in the United States. It was a "City of Toots" for a week, and the boy musicians from all parts of the country tooted themselves into the hearts of Chicago's populace. There was music in the air from the Sunday preceding the tournament, when the first bands started to arrive, until the last of the juvenile musicians left for their homes the following Saturday. The contest was held under the auspices of the Music Industries Chamber of Commerce during the period of its convention at the Drake Hotel.

The keys of the city were turned over to the boys, who camped out on the city's \$5,000,000 Municipal Pier, a mile out in

Lake Michigan. It was a real camping party. The camp was called "Camp Dever," named after Chicago's Mayor, and the boys were under the protection and discipline of the R. O. T. C. officers, in charge of Major F. L. Beals, supervisor of physical education in Chicago High Schools. Everything possible was done for the care, protection and entertainment of the young musicians.



THE JOLIET, ILL., ELEMENTARY SCHOOL BAND, WINNER OF THE \$1,000 PRIZE FOR GRAMMAR SCHOOL BANDS

They slept and ate on the pier, with the exception of the Oklahoma City band, which traveled here in a private Pullman and used it as their hotel while in the city. The boys and the girls—for there were a number of girls in several of the bands—were taken to places of amusement, theaters and ball parks, and they gave concerts in churches, on the pier, and at the music trades convention.

Captain W. H. Santelmann, leader of the United States Marine Corps band, was chief judge of the tournament. The contest was staged in a specially constructed band-stand in Grant Park, opposite the Congress Hotel, with Captain Santelmann in an adjoining stand making notes. The juvenile musicians were judged on four points—tone quality, expression, intonation, precision—making a total of forty possible points, ten points for each subject. After each band had finished, the ratings were placed in a sealed envelope, which was not opened until the close of the tournament.

The great spectacular climax of the tournament came on Thursday, the final day of the contest, when all the competing bands assembled in Grant Park before one of the largest crowds which ever gathered on the lake front. Traffic on Michigan Avenue was suspended and the Boulevard was turned over to the boy musicians for their parade. Band after band fell into line and marched up the great boulevard from the Congress Hotel to the Wrigley Building, and then countermarched to Grant Park, where Captain Santelmann announced the victors. The boy musicians were then lined up for a massed concert of all the competing bands, and the leader of the victorious High School band, J. W. Wainwright, of Fostoria, Ohio, was given the honor of leading the massed bands in the first of the pieces—"National Emblem." The boys of the Fostoria band then carried their leader on their shoulders around

Grant Park as the huge throng cheered.

The competition was very keen and the markings of the leaders very close. Fostoria's rating, which won the major prize of \$1,000 in the high school class, was 34. Harrison Tech., of Chicago, won the second prize of \$500 with a rating of 32; Council Bluffs, Ia., third, \$300, with 31; and Hyde Park, of Chicago, fourth, \$200 with 30. The next ten on the list were so close that it was decided to give them special prizes of \$100 each. They were East Chicago, Ind.; Richland Center, Wis.; Newcastle, Pa.; Paw Paw, Mich.; Pittsburgh, Emerson band; Gary, Ind.; Evansville, Ind.; Cedar Rapids, Ia.; Louisville, Ky.; and Rockford, Ill.

The awards to the grammar schools were as follows: Joliet, first, \$1,000, with a rating of 29; Harvey, Ill., second, \$500, with 24; Gary, Ind., third, \$300, with 23; Glenwood Manual Training School, fourth, \$200, with 18.

So great was the success that it has been decided to make the national school band tournament an annual affair. The 1924 tournament will be conducted under the auspices of the School Band Contest Committee of America, a division of the National Bureau for the Advancement of Music. Many of the school bands throughout the country already are making plans to give concerts and other entertainments to raise money to defray the expenses of the trip to the tournament next year. Rotary clubs, Kiwanis clubs, Lions clubs and Chambers of Commerce also are being interested. Because of the lack of funds, many bands which entered the tournament just closed were unable to come to Chicago. Announcement will be made later by the School Band Contest Committee of America as to the date and detailed plans for the second tournament. Permanent headquarters have been opened in the Garrick Theater Building, Chicago.

"In this country we do not seem to find any serious trouble discovering factory sites and penitentiary sites. Why not more forethought and timely planning, as we build our communities or enlarge them, for municipal playgrounds and municipal golf courses? The public will gladly make use of play facilities and play leadership if they are made available."  
—From "Now When I Was a Boy," by Gustavus T. Kirby, Better Times Syndicate Service.

# The Subgrade and Its Design

Abstracted from the Progress Report of the Committee of the American Road Builders' Association on Subgrade and Its Relation to Road Surfacing and Traffic

**W**HILE road surfaces, because of their characteristics, are divided into standard groups, subgrade conditions are so variable and characteristics so numerous that little has been done to group or standardize subgrade designs, other than to outline a few methods of treatment, all leading in the direction of stabilizing and increasing the bearing power of the subgrade material. It is impractical at this time, on account of the variety of conditions, to specify details of subgrade construction, yet a few facts in connection with subgrade design may be conclusively stated, viz.:

1. The bearing power of nearly all soils is increased when the moisture content is decreased.

2. The bearing power is affected by moisture in some soils more than in others.

Therefore, the first two principles in the design of subgrades are the regulation or exclusion of water and the selection of a subgrade soil or material that has the highest bearing power and is least affected by moisture.

Subgrade design has for a long time been masking under the name of drainage, and in many instances the installation of pipe underdrains has been considered a cure-all, regardless of whether or not the subgrade was a drainable soil or material that would be bettered by the installation of such drain pipes.

The bearing power of practically all soils is affected by moisture, so that in designing a subgrade it is necessary to see that the material that is least affected by moisture is used. Some soils expand greatly on taking up water, and shrink up when the water

dries out. This effect of water proves the soil to be unstable and unsuitable for subgrades. Generally speaking, the coarser the material up to a certain size practical for working, the less capillary saturation and the greater the bearing power. The only exception to this statement is cinders.

Experiments have shown that a layer of coarse material, such as sand or gravel, when placed over clay, retards the capillary water from rising to the top of the subgrade, or in the case of soil roads, to the top of the surface. From which it may be

seen that the value of design of the subgrade not only depends on the regulation of moisture, but the proper selection of the subgrade material as well.

Any system of drainage that will prevent water from finding its way to the subgrade will also serve as a means of freeing the subgrade of the

water that does by chance find its way to the subgrade. Generally this is found in the selection of subgrade material and a combination of ditches and underdrains. Care should be taken that the ditches are only of a sufficient depth to lower the water-table and are located far enough from the traveled way to interpose no hazard to traffic.

If side or longitudinal ditches are designed properly, it seldom happens that longitudinal pipe underdrains are necessary, for the open side ditch will perform all the drainage functions of such drains.

## Pipe Underdrains

Oftentimes these longitudinal pipe underdrains are constructed beneath the roadway

### Road Building a Science

Road building is now reaching its rightful place in scientific development, where the design and construction of the subgrade and foundation are commanding nearly as much attention as the design and construction of the surface. Considerable economic waste has been caused by trying to correct subgrade weaknesses by strengthening the road surface. This method has proved so conclusively wrong that much experimentation and serious study has been and is being given to the design and construction of a proper subgrade.



surface, but it is better to construct the pipe drain outside, for then it can be repaired, if necessary, without disturbing the road surface. Should pools of water accumulate because of the sagging of drain pipe line or should it become clogged, the stability of the subgrade in the immediate vicinity would be greatly reduced. This condition occurring in a pipe line placed under the road surface would reduce the supporting value of the subgrade to the surface slab.

Lateral pipe drains placed at angles with the longitudinal ditch or pipe drain are sometimes necessary to take care of springs, saturated soil or other sources of water. The number of such lateral drains depends on the nature of the soil drained; the character of the subgrade material largely controls their number and location. The more impervious the soil, the greater the number of drains necessary to drain the subgrade.

In certain soils, pipe underdrains are practically valueless, as the rate of flow through the impervious material is so slow that the water does not find its way quickly to the pipe and thus keeps the subgrade saturated and of a low bearing value. In other soils through which water will be more quickly drained, pipe underdrains are more effective, and as the soil becomes more drainable the subgrade becomes more responsive to the use of underdrains, but the necessity of underdrains becomes less.

In impervious soil, pipe underdrains only the soil in its immediate vicinity; the impervious soil prevents percolation of water from the under-surface or the roadway to the pipe. Soil underlying the surface slab being saturated, its bearing value is consequently reduced to a minimum.

Most typical road sections carry a side ditch, the bottom of which is below the top of the subgrade. This ditch is sometimes replaced by a drain, but in either event the purpose is to cut off or intercept any water from reaching the subgrade, as well as to act as a drain or sewer to carry off the water. The side ditch also serves as a connection or sewer to carry off any water from the lateral drains.

#### **Choice Between Open Side Ditches and Pipe Underdrains**

The question of choosing between open side ditches and pipe underdrains for the

disposal of water is one of service and cost combined. It is both difficult and costly to keep the open ditches free from obstruction of ice or earth slides and in a condition to function all the time. Whether it is more economical to install pipe drains or run the risk of soaking the subgrade and greatly impairing the road improvement is a problem to be met with sound judgment, giving weight to the value of constant service and cost of maintenance, as well as to safety in the operation of traffic.

Hard-surface roads practically waterproof or protect from rain the subgrade below the surface. Selected soil roads approach this condition, though in a lesser degree. This is especially true if the water running off the road surface over the shoulder is drained away from the subgrade toward the ditch. Thus we see that the road surface and side ditches protect the subgrade from water from the top and sides, but it is not protected from capillary moisture from the bottom, which in many soils exists in quantities sufficient to greatly decrease their bearing power and thus weaken the subgrade. It is very difficult to cope with the water rising by capillarity, and many times this causes failure of the road surface.

#### **Combating Capillary Water**

Underdrains in most soils will relieve the ground of free water, but recent research in this field by the University of North Carolina and the State Highway Commission have shown conclusively that underdrains will not take care of capillary water. The ditches and underdrains may be designed to adequately cope with the surface water and water from springs and other sources, yet capillary water may be present in sufficient quantity to decrease the stability of the subgrade to such extent that it must be cared for.

Assuming that surface water may be cared for by ditches, and that water in the subgrade from springs and other sources may be relieved by underdrains and ditches, the problem of caring for capillary water still remains. The most satisfactory way to cut off capillary water is to introduce a layer of material of low capillary value, or, in other words, a material through which the passage of the capillary water will be retarded. This can often be accomplished by selecting, in the grading of the road,



material of low capillarity and using it for a subgrade on which will rest the hard surface or, in the case of soil roads, that portion used by traffic. It often happens that it is more economical to borrow material the bearing value of which is least affected by water, for the subgrade, and it sometimes may be desirable to waste materials from cuts and borrow satisfactory material for the fills. Too much stress has been laid on the balancing of quantities, and too little stress has been laid on the selecting of material entering the subgrade.

In establishing the grade of a road it is necessary to know the character of the various materials in order that the most suitable material may be selected for the subgrade. Many times it is more economical to raise the grade in the cuts and take advantage of the better material near the surface and borrow material of high bearing value for the remainder of the embankment, than to balance the quantities by using the material from the cuts if it be of low bearing power. The engineer who

attempts to balance quantities, disregarding the quality of the material entering the subgrade, will greatly reduce the strength and life of the road surface and its value to the public.

It cannot be said that the details of ideal design of subgrades up to this time have entered into the details of road construction, with the possible exception of drains, or where by chance the grading of the road supplied the better material. There are many elementary principles that have been established which are not being generally followed.

It is difficult to measure in dollars the value of a properly designed subgrade, for in many instances the surface has borne the blame for failures or received the credit for success when in truth the subgrade was responsible for the condition of the highway. It can be safely said that a dollar spent for the first two elementary principles of subgrade design will return bigger dividends than money spent in any other place in road construction.

## Garbage and Ash Collection Costs in Dayton, Ohio

THE following figures and comparisons give an idea of the work of the Street Department in Dayton in the collection of garbage and ashes during the first two months of this year. In January, 1922, 24 cars were shipped to the reduction plant and 55 tons, or the equivalent of 1 car, sent to the workhouse farm for the feeding of hogs. In February, 1922, 19 cars were shipped to the reduction plant and 55 tons to the workhouse farm. In January, 1923, 28 cars were shipped to the reduction plant and 55 tons to the workhouse farm. In February, 1923, 24 cars went to the reduction plant and 95 tons to the workhouse farm. Therefore 9 cars and 40 tons more garbage was collected during the months of January and February in 1923 than in 1922.

Complaints regarding the non-collection

of garbage are generally due to the fact that garbage is not kept in proper receptacles or is placed where the collectors are unable to get to it, such as in locked garages or back of locked gates. The householder can insure regular collection of garbage by remembering the collection dates and placing the receptacles at a convenient place. The following figures show the amount of ashes and rubbish collected during January and February, in comparison with the same months of 1922 and indicate larger collections this year at lesser cost: In January, 1922, 9,835 cubic yards were collected at a cost of \$4,946.50; in January, 1923, 10,705 cubic yards at a cost of \$4,685.00. In February, 1922, 8,810 cubic yards were collected at a cost of \$4,595.40; February, 1923, 9,430 cubic yards at a cost of \$4,173.95.

### ANTIOCH THE FIRST LIGHTED CITY

Antioch, in the fourth century, is believed to have been the first city to make any attempt to light its streets at night.—*New York Sun and Globe*.

# The Function of Alum in Water Purification

By W. F. Donohoe

**P**URE water is of the greatest importance to any community. Disease lurks in every drop of polluted water, and the efficiency or inefficiency of the methods employed to purify a community's water-supply is measured in death-rate.

The danger of contagion from polluted water is well known. In Europe, Asia and Africa the cholera scourge, with its millions of victims, was found to be directly traceable to water contamination. In the United States, instances are numerous in which the infection of a water-supply by the excreta of a single typhoid patient has spread the disease over an entire countryside. Epidemics of diarrhoea and typhoid are frequent results, especially in thickly populated regions, of failure to safeguard properly the community water-supply.

Some method of water purification is necessary wherever a community derives its water-supply from surface waters. In some regions where the watershed is exceptionally free from habitations and the water from suspended matter, filtration through filter-beds of sand and gravel is sufficient for the production of a potable water. In many sections, however, the water contains organisms that pass freely through a sand filter. Sometimes, too, the water brings down so much sediment that interference with the proper working of the filter results. In such cases and where the watershed is situated in a thickly peopled region and, consequently, is easily subject to contamination, sand filtration must be supplemented by some form of chemical treatment.

Alum has been found to be very effective for this purpose. The use of alum for the purification of municipal water-supplies is no new development. Alum has been so used for twenty centuries and has long been a factor in the water purification systems of Europe. In the United States alum is commonly used wherever high turbidity makes it impossible to remove the elements of pollution by other methods.

The value of alum as a purifying agent

lies in its power to rapidly precipitate all suspended and semisoluble matter in water. As the suspended matter has strong affinity for the organic matter which causes pollution, bacterial reduction is roughly proportional to the reduction in turbidity. The effectiveness of alum for purposes of water purification may be judged from the fact that as little as one or two grains of alum per gallon of water is sufficient to precipitate a great amount of sediment. The amount of alum required depends upon the amount of suspended matter to be removed. While some waters can be clarified with as little as 0.6 grain of alum per gallon, very turbid water like that of the Missouri and Sacramento Rivers requires 6 to 10 grains of alum per gallon.

The primary function of alum is clarification. Indirectly, or secondarily, alum also removes some bacteria, for many of the latter cling to the suspended matter precipitated by the alum. Sometimes, where the water cannot otherwise be made fit for consumption, other chemicals are used in connection with alum. The purpose, in such cases, is to sterilize the water as a further protection against bacteria. The chemical most generally used with alum in this process is chlorine. Ozone, potassium permanganate, hydrogen dioxide, bromine and calcium dioxide have also been used with varying degrees of success.

## The Advantages of Using Alum

Alum not only brings down the suspended impurities more thoroughly than is possible with any other method, but also effects a great saving in time over the English, or slow-sand, method of filtration. The principle of that system is to allow a film of bacteria to collect on the surface of the sand and act as a strainer to prevent the passage of other bacteria. Two acres of slow-sand filter will filter 6,000,000 gallons a day. With the mechanical filtration method, in which alum is employed, it is possible to satisfactorily filter, in less than one-tenth of an acre, over 14,000,000 gal-

lons a day, or 50 times the volume possible with the slow-sand system.

The dry alum is mixed with water in solution tanks to form a  $4\frac{1}{2}$  per cent solution. This passes through orifice boxes equipped with devices for measuring the flow, and is forced through pipe lines into the raw water before the latter reaches the sedimentation basin.

The amount of alum necessary varies with the turbidity of the water. For turbidities under 40 p. p. m., 0.6 grain of alum per gallon has been found sufficient for proper coagulation. After severe rain-

storms, when the turbidity of the water is naturally higher, it is, of course, necessary to increase the proportion. The amount of alum to be used must be determined frequently and exactly. An excess leaves uncombined alum in the water, while too little fails to effect proper sedimentation.

To some, the use of chemicals in drinking water is, at first, distasteful. It must be realized, however, that fecal matter and the germs of disease present in untreated water are themselves chemical substances. Through chemical treatment these deadly organisms are removed.

## New Paving in Manchester, N. H.

### Methods, Costs and Mixtures Described

**D**URING 1922, 17,641 lineal feet, or 3.4 miles, amounting to 59,625 square yards, of paving of the coarse-mix Topeka type pavement was laid by city forces and city equipment in Manchester, N. H., at a cost of \$148,579.01, or an average cost of \$2.48 per square yard. In addition, a foundation for a new pavement about 400 feet in length was completed and treated with heavy oil. It was considered inadvisable to put the topping on this section until all settlement due to the earlier

construction of the sewer ended. The Manchester Street Railway Company took up and relaid some 3,000 square yards of pavement, and by agreement with the city the old block was transferred by the street railway to such points as the city designated. They also made payment for the breaking of the old block, on account of its removal, and the city delivered to the railroad company new block which was laid by the railway company without any cost to the city other than the cost of the block. The com-



CONSTRUCTING NEW ROADS IN MANCHESTER, N. H.

At left, the finished topping in part, the base ready for the top. Center, finished surface before adding a little cement and also a portion of the surface to which the cement has been added in the background. At right, street completed about one year ago, showing smooth surface and excellent condition of roadway

pany also placed the concrete foundation. This improvement results in a benefit to the city in that a very much better surfacing is obtained than if the old blocks had been used.

### Modified Topeka Pavement

The type of pavement that is being laid in Manchester is somewhat different from the ordinary modified Topeka type in that a greater percentage of stone measuring from 1 inch to  $\frac{1}{4}$ -inch is used in the mix. Frequent analysis of the mix was made during the working season to see that the proportions of asphalt, stone and sand were proper and would result in a durable wearing surface.

Conditions in Manchester are ideal for a bitulithic or asphalt concrete type of pavement, because of the character of the subsoil, which is generally sandy, and also because of the good surface run-off.

In some places clay has been found, but where encountered, it has been removed to a sufficient depth and replaced with better draining material. The gravel base consists of screened gravel laid to a depth of 6 to 8 inches, according to the importance of the street being paved. This was thoroughly rolled, covered with a coarse sand or screenings, and another layer of crushed stone or mixed crushed stone or gravel was added, to a depth of 2 inches. This was rolled and coarse sand or screenings were added to fill the voids. Then the topping of asphalt mix was placed and rolled. There is no question whatsoever that the wearing surface of this pavement will outlive the period of the bond issue, namely, ten years, and the foundation will have a very much longer life, so that when the

wearing surface gives out, a new surface can be added at nominal cost.

The analysis of the mix used for the asphalt top shows 8 per cent of asphalt by weight, and stone aggregate of the following sizes:

Passing	Retained on	Per cent
1 inch.....	$\frac{1}{4}$ -inch screen .....	30.5
$\frac{1}{4}$ -inch.....	10 per cent mesh.....	5.8
10 mesh.....	40 per cent mesh.....	25.0
40 mesh.....	80 per cent mesh.....	21.7
80 mesh.....	100 per cent mesh.....	3.0
100 mesh.....	200 per cent mesh.....	10.7
200 mesh.....		3.3

All of the material used for the paving, with the exception of the trap rock used in the mix, and the asphalt, was delivered from local gravel-pits or sand-banks located in Manchester.

The low cost of the paving per square yard was due to the continuity of the work. Screened gravel was obtained in the quantity needed at any time, day or night, from a local contractor. Asphalt and trap rock were purchased ahead in sufficient quantities so that the supply at the city yard was never exhausted. Before beginning the season's work the asphalt plant was thoroughly overhauled, and with slight repairs it was in good condition for this season's work.

We are indebted to E. R. Conant, formerly Surveyor in Charge of Street Construction, Manchester, under the Board of Highway Commissioners, for the material above. In a recent letter he states that this mixture has been successful as, after two years of service there appears to be no rolling or movement and the density is such that continuation of the mixture as noted is warranted. Mr. Conant has resigned to open an office as a consulting engineer in Boston, Mass.

## Suggested Shower-Bath Standards

AT the recent annual meeting of the American Association for Promoting Hygiene and Public Baths, the following suggestions were submitted by the Committee on Shower-Bath Standards, consisting of August P. Windolph of New York, chairman; Robert F. G. Kelley of Baltimore, Md., and Arthur M. Crane of Nutley, N. J.:

### SUGGESTED SHOWER-BATH STANDARDS

1. The showers and dressing compartments should be well lighted.
2. The shower and dressing compartments should be constructed of a material impervious to water, sanitary and easily cleaned. The interior surfaces of compartments should present a perfectly smooth surface with as few cracks and crevices as possible, to avoid the shelter for dirt and disease germs.
3. The floor of compartments should be of a sani-

tary material and sloped to carry off the water used in bath, and should be non-slipping.

4. There should be an ample supply of hot and cold water at all times.

5. All pipes, fittings and valves should be of heavy and durable metal, placed so as to be easily accessible.

6. The shower head should be self-cleansing and so constructed that the water consumption may be controlled, and placed at the top of the shower compartment set at an angle of 45 degrees.

7. The hot and cold water should be controlled either with a mixing valve so designed as to prevent back water pressure, or with separate valve on each hot and cold water line.

The Association requests comments and criticisms on these suggestions before the next annual meeting. Chairman Windolph's address is 25 West 33d Street, New York.

The Association's Swimming Pool Standards are still in force, as adopted May 12, 1915.

# HOUSING A SEWAGE DISPOSAL PLANT



The Effect of Cold Weather on Plant Operation Greatly Reduced

By C. M. Niles

**T**HE village of Oriskany, N. Y., recently completed the work of completely housing its sewage disposal plant, consisting of two Imhoff tanks, each 28 feet in diameter, grit channels, screen chamber and sludge well.

Several conditions prompted this unusual procedure. The plant stands in an exposed position on the Mohawk River flats, and the heavy accumulation of snow and ice in winter damaged the brickwork and wooden baffles of the Imhoff tanks. Careless people threw sticks and stones into the tanks, which interfered with the withdrawal of sludge from the bottom. At one time the accumulation of rubbish became so great that the tanks had to be pumped out and cleaned, at a cost of \$400. There was also the possibility of someone's falling into the unguarded tanks, with unpleasant and perhaps fatal results.

The two Imhoff tanks are covered by a building 30 x 60 feet, measuring 6 feet from sill to plate. The 8 x 8-inch hemlock sills rest on concrete piers set 10 feet center to center. The sills are anchored to the piers by  $\frac{5}{8}$ -inch bolts embedded in the concrete. The building is strongly framed of hard pine, with upright posts at 5-foot intervals. The roof is strengthened by six trusses built up of 2 x 6-inch timber doubled. The building is sided 4 feet high

on each side with matched spruce. To provide the ventilation necessary for the successful operation of the plant, the sides are left open 2 feet below the eaves and covered with  $\frac{1}{2}$ -inch mesh galvanized wire screen stapled to the plate and to a 3 x 4-inch girt below the opening. The gable ends are covered solid. The roof boards are laid tight and covered with composition roofing.

A wing 10 x 29 feet covers the intake, comprising the grit channels and screen chamber. The construction is similar to that of the main building, except for lighter timbering. Three doors give access to the building at convenient points. The sludge well, which is equipped with a heavy-duty chain pump and a  $1\frac{1}{2}$ -horse-power gasoline engine for pumping sludge to the filter-bed, is covered by a separate building 10 x 12 feet with one door and two windows.

The cost of the buildings was \$1,300, which will soon be repaid by the saving on repairs and by insurance against meddling and accidents. An unexpected advantage has also been gained. The main building with its ventilated sides keeps the raw sewage cool as it flows through the tanks in summer, and this eliminates the odor previously noticeable in the vicinity during warm weather.

## Yearly Expenditure per Capita for Street Lighting

Local conditions, electric rates, the area of the city, the population, and many other things influence the expense for street lighting. For the whole United States it is less than 75 cents. There are a few cities spending over \$3, the highest being \$4.81. The average for the 50 best-lighted cities is about \$2.05.

—A. F. DICKERSON.

# An Answer to the Garden City Challenge

By Arthur C. Comey

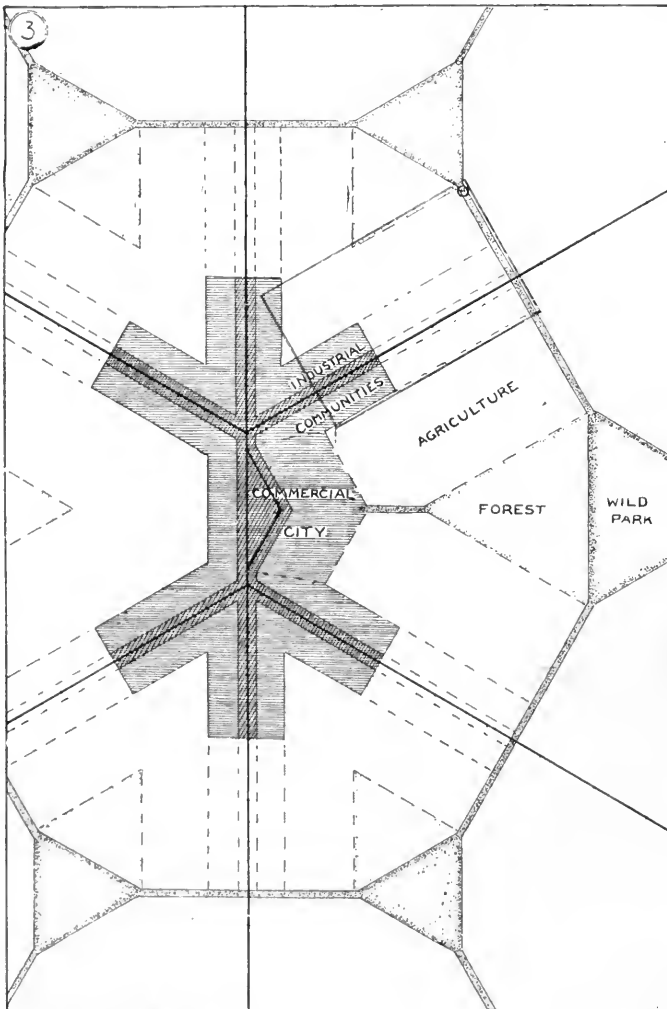
Fellow, American Society of Landscape Architects

THE three essentials in the British garden city are openness of community development, which will give ample space for the individual's development; effective barriers to continued growth, so that there may not be big masses of population on comparatively small areas;

and physical separation of communities. It is generally agreed, even by the British champions of garden cities, that common ownership of land, which might be difficult of attainment in America, is not essential to a garden city.

I believe that the British idea has impractical features under either British or American conditions; that either population will pile up in the city, bringing all the evils of congestion, or that the barrier, agricultural or otherwise, will be broken down. I suggest as a substitute the kind of plan that will automatically produce the very conditions that the British garden city aims at. There are two essentials to this plan: separation of communities, as in the British garden city; and the development of the strip idea of growth, controlled by the city's planning and by its construction of arterial routes.

Because of the pressure for great cities to grow even greater, we must locate most of our ideally planned communities near and as parts of them. The capital and labor are there. However, just as surely as city populations are allowed to spread over the country in vast agglomerations without a plan, and without adequate arterial provision,



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DIAGRAM OF A LARGE CITY-STATE DEVELOPING IN STRIPS  
ALONG CARDINAL ARTERIAL ROUTES

the cities will eventually lose their vigor and perhaps die of hardening of the arteries.

For purposes of diagrammatic presentation of the scheme, we may cover the United States with a series of triangles. At each point of intersection there will be a city with its tributary region of, say, an area of 1,000 to 5000 square miles, comprising a single economic unit, a city-state. The legs of the triangles will be the arterial connections with other city-states. As each grows large, the expansion of all forms of urban life will be carried out along these arterial connections. (See first diagram.)

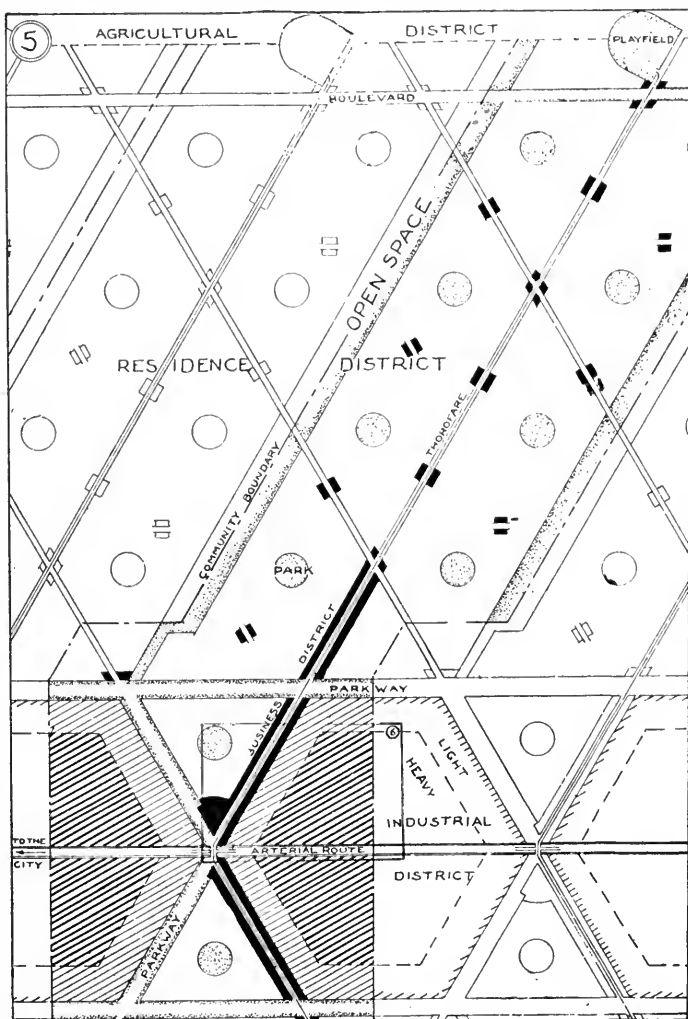
The artery through the strip will carry all forms of transportation and transit. There will be, for instance, a motor highway with space for four or more lines of vehicles in each direction; a transit line, with stations well spaced; and paralleling these the steam railroad line, with local freight sidings. There will be no grade crossings, and no occasion to go over or under the arterial route except at intervals of a half-mile to a mile.

The commercial center of the city-state will be located somewhat off the principal interstate route, so that through traffic not destined for, or originating in, the city will by-pass it. The smaller, satellite communities will be radially connected by means of the artery; and development, as the city grows large, will be solely along these radials, because they alone will carry transit lines and other means of transportation.

At a short distance on either side of the arterial strips there will be plenty of cheap land, since it will be relatively inaccessible for urban purposes, and this will be used for all kinds of agriculture, for

parks and other public open spaces, and, at a greater distance, for forest preserves and, where topography favors, for reservations of wild lands. By means of the rapid transit on the radials, it will be easy and cheap to get out to a girdle parkway of great width, which may be planned between the city-states and will lead directly to the wild park in the open country.

In the suburban communities (see second diagram), apartment house areas will best be located near the commercial center. More and more open residential areas will extend out from the local center along the transverse thoroughfares. For the most part, owing to the lack of pressure and the ease with which successive local centers will



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DIAGRAM OF A SINGLE COMMUNITY ON THE STRIP

start up, this residential district will partake of the nature of the typical garden suburb, with as much land about each house as the average worker really wants, instead of the tiny strip, or nothing, that he so frequently must be satisfied with to-day in the great city, and which under present methods of growth must become more universal each year.

The strip plan will have the great advantage over the garden city that its development will be automatically controlled by the planning and construction of its transportation facilities, both matters that may properly be directed by the city itself. One

of the difficulties in the garden city is to start it; and it will be equally or more difficult to stop it. In the strip plan we shall not be so much interested in stopping growth, as this will without extra effort spread out along the strips to successive new communities. The starting of the strip will be made easy because the industrial locations are near the only lines of travel. Proportionately few new cities are started, but the strip system can be applied to any large city with success.

ACKNOWLEDGMENT.—A partial report of an address delivered before the American City Planning Institute. For a more thorough exposition see the author's "Regional Planning Theory" (notice on page 413 of the April issue).

## Some Sources of Dissatisfaction

### Do Any of Them Apply to Your City Government?

THE bulletin of the Public Service Institute of a large city recently published the following list of reasons for the existence of waste and extravagance in the local city government. The list and the Institute's comments are here reprinted as offering thought-compelling suggestions for city officials in other municipalities where a modern charter or up-to-date methods of accounting and administration have not yet been installed:

#### Some of the Reasons

1. Lack of comprehensive financial planning
2. Inadequate and antiquated accounting
3. Overestimating revenues, either wilfully or from lack of information
4. Underestimating costs, either wilfully or from lack of information
5. Requests of departments for appropriations not adequately analyzed
6. Departments permitted to exceed appropriations
7. Failure to compare details of expenditures from year to year
8. Cost accounts not kept
9. Unscientific purchasing
10. Lack of comprehensive planning of work and improvements
11. Diffusion and confusion of authority
12. Diffusion and confusion of responsibility
13. Separate offices doing similar work
14. Too many separate offices, boards and departments
15. Antiquated methods used in some departments
16. Detailed records not kept of work done
17. Technical men not selected to fill technical positions

18. Competent employees have no assurance of permanency in their positions
19. The spoils system; public positions not filled by merit
20. Absence of standards of hours and efficiency for employees
21. Taking advantage of the fact that inefficient service does not totally impair the financial solvency of a government
22. Presuming on public apathy and inability of taxpayers to resist increased taxes
23. Tendency to be extravagant with other people's money
24. Ignoring the principle, "A public office is a public trust"

#### The Institute's Comments

No one department or office suffers from all these weaknesses, and no one of the reasons applies to every office and department. However, somewhere in some department, board or office (usually several) each of these applies. Taken all together, they explain the cost of government in ———, the deficits, the source of much dissatisfaction, and the demand for a new charter embodying the principles of good organization, representation, and administration.

All of these sources of waste can be eliminated—some with comparative ease, some with difficulty. Some require charter change, some merely change in methods, and some a change in the attitude of the people.

Underlying all is the necessity for facts—information: more information for officials, more information for civic organizations, and, most important of all, more information for the taxpayers and citizens. *When all citizens have available the facts about governmental affairs—methods, costs, results—the problems will be on a fair way to solution.*



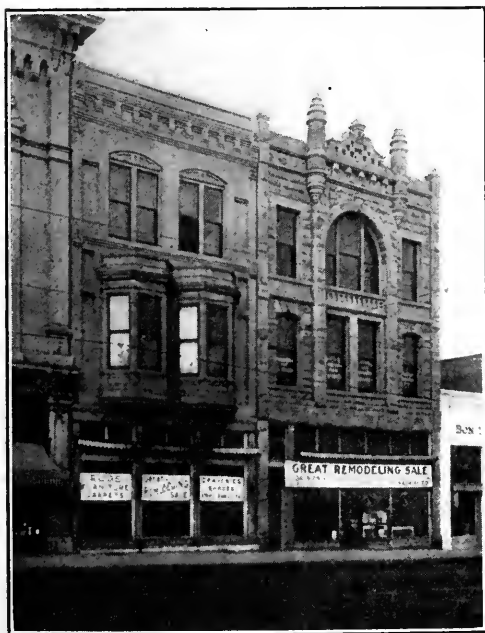
# How a Community Arts Association Is Raising Architectural Standards

By Edward Sajous

**T**HE rapidly growing city of Santa Barbara, Calif., has a live Community Arts Association, with a Drama Branch, an Orchestra Branch, and a Plans and Planting Committee.

In such a period of hurried construction, which has accompanied the growth of many cities, the tendency has been to erect cheap

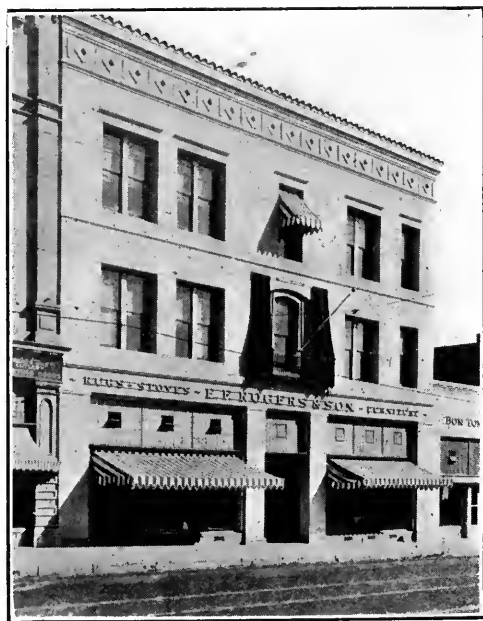
mittee to the local business house which, in altering its building, would conform most closely to high architectural and esthetic principles. Among the buildings altered during the past season was that of Rogers & Son, a furniture company. An effort was made to make the building front beautiful, and after inspection of several buildings, the committee, composed of well-known architects, awarded the prize and the right to set a plaque in the side of the doorway, to the Rogers firm.



**THE ROGERS BUILDING BEFORE REMODELING**

buildings to catch the demand for offices and to put up homes which are built to sell and satisfy for the moment, but which are lacking both in architectural beauty and in actual utility. In Santa Barbara, however, the Plans and Planting Committee of the Community Arts Association has entered with great vigor into the very heart of the building industry. Its aims are to encourage the building of good houses; to maintain high architectural standards; to arouse interest in beautiful gardens and in the planting of empty spaces with flowers; and to advocate municipal legislation controlling vacant lots.

Recently, a prize was offered by the com-



**THE BUILDING AS IT NOW APPEARS**

Lectures by architects and designers are frequently held under the auspices of the Plans and Planting Committee. The Spanish motif, though it is not forced, is encouraged in Santa Barbara as that most suitable for the climate and topography. The committee is willing at any time to confer with home builders and to give advice on their problems. Recently the new Santa Barbara City Hall, soon to be built, was the subject of the committee's advice and help.

# Adequate Street Lighting a Municipal Necessity

By F. M. Reast

**I**N any locality, be it the largest city or the smallest crossroads village, there is a need for effective street lighting. The growing tendency to add a few hours of the darkness to the measure of man's day, and the ever-increasing use of the automobile, have made it essential that the illumination of our streets be adequate and effective, if the safety and protection of citizens is to be considered. The larger a city, the greater is its need for good lighting. An increase in population means a corresponding increase in both vehicular and foot traffic, a greater number of stores and increased transportation facilities to take care of the added number, and the opening of new streets and the erection of new homes to house them.

This means that additions and extensions to the street lighting system will be required within the area, and as congestion increases, higher lighting intensities will be needed in the more crowded sections of the city.

The necessity for street lighting is, of course, admitted by everyone. As far back as the Roman era the advertising value of

street lighting was realized, for we read that in those early days lamps were placed at the entrances to baths, theaters and other public buildings in the city of Rome. Later on, we read, in the seventeenth century, the streets of Paris were lighted by means of candles placed in "lanthorns" and swung by means of cords and pulleys above the middle of the street.

This shows that even centuries ago, when people as a rule retired early and the automobile was undreamed of, the economic value of street lighting was realized. Based on present-day standards, the cost of lighting in those days was very great, and the efficiency of the "system" was hardly expressible in modern lighting terms.

The necessity for effective street lighting varies in almost direct proportion to the population of town or city. With an increase in population we find a corresponding increase of traffic, both by day and by night, afoot and awheel. To assure safety and convenience to pedestrian and driver alike is a municipal obligation that no community should shirk.



DOUBLE-LANTERN STREET LIGHTING STANDARDS ON MICHIGAN AVENUE, CHICAGO, ILL.



A NIGHT VIEW SHOWING THE USE OF BROADWAY POSTS IN DETROIT, MICH.

### The Advantages of Well-designed Street Lighting

The effective lighting of our streets and highways is of vital importance to every member of the community. Besides being a convenience, it is a protective agency of far greater scope than a police force, and of course costs infinitely less to maintain. Good lighting is one of the surest indications of municipal efficiency and can be acquired and maintained at a moderate expense. The interest on the investment in a modern street lighting system is returned annually in the form of increased property values and a decrease in accidents due to street traffic. Good street lighting creates a psychological impression of thrift and progress, advances civic pride, attracts favorable publicity, and aids in the promotion of other improvements. It assists the police and fire departments, facilitates the movement of congested traffic, and discourages deeds of violence.

The statement has been made that street accidents do not "happen" but are "caused." This assertion is undoubtedly true, but it is doubtful if the day will ever come when the absent-mindedness of human nature will not be responsible for most of the injuries received on the streets and highways. Safety engineers attempt to classify traffic accidents as preventable or non-preventable, depending upon whether or not a reasonable amount of caution was observed by the victim and a definite respect for safety

and the welfare of others was maintained by the responsible authorities. Next to educating the public to an observance of safety rules, there is no greater responsibility resting upon the shoulders of the municipality than the provision for ample street lighting to make safe the going and coming of both pedestrians and vehicles.

Based upon data secured from a large number of cities in the United States, it is estimated that of 3,223 fatalities which occurred during the hours of darkness, 17.6 per cent were directly attributed to lack of sufficient illumination—and this condition was found in a country where street lighting is generally of a very high order. These figures indicate very pointedly the conditions that must exist in localities where effective lighting facilities are not available.

The importance of a locality is largely measured by its street lighting. As shipping naturally gravitates to the cities with good harbors, so the populace of a community at night instinctively turns toward the well-lighted thoroughfare or to amusement places where the magnetic influence of attractive lighting has drawn it.

Taking advantage of the commercial possibilities of display lighting has often meant the success of a business enterprise which would otherwise have been a failure. Many instances are on record of merchants whose shops were located on streets off the beaten path of trade travel, who, by a concerted effort, often at their own expense,

secured for their immediate locality a lighting system attractive by night and ornamental by day, with the result that a steady stream of business was diverted from the better-located streets to their doors.

A city's street lighting is the best barometer of its progressiveness, its civic pride, and its general desirability as a place in which to live and work. Beautiful street lighting has often been used successfully to attract dwellers to new residential districts and to increase the convertibility of real estate holdings.

Incandescent lamps are peculiarly adaptable for this class of service, because lamps of the same current rating, but of widely different wattage and candle-power, have been designed, making it possible to operate a wide range of lamps on the same circuit. Westinghouse lamps of the 6.6-ampere series are available in sizes ranging from 600 to 6,000 lumens, and by using a small auto transformer designed for that purpose, ad-

vantage may be taken of the 10,000-, 15,000- and 25,000-lumen, 20-ampere lamps on a 6.6-ampere series circuit. This feature makes it possible to vary the intensity of illumination within a given area to suit requirements. City streets are usually graded for illumination purposes, as business districts, main residence thoroughfares, or boulevards, and side streets, or outlying districts. It often happens that for the sake of convenience and economy, it is desirable to serve more than one of these classifications on the same series circuit, and this is commonly done by series lighting.

Molding public opinion in favor of an improved street lighting system is sometimes a difficult task. While some thoughtful individuals may realize the inadequacy of their illumination, they hesitate to take definite action, because they feel that public opinion will not support the idea. This condition can be overcome by intelligent publicity.

## New York City Searches Diligently for Water Waste

By William W. Brush

Deputy Chief Engineer, Department of Water Supply, Gas and Electricity, New York City

UNDERGROUND water-waste detection has been of unusual value in the boroughs of Manhattan and the Bronx, New York City, on account of the rock fill existing in many streets in these boroughs and because of the abandoned services, especially in the borough of Manhattan, resulting from the destruction of old buildings and the absence of surface indications of the leaks which develop under such conditions. In the boroughs of Brooklyn, Queens and Richmond, the geological formation is such that leaks usually appear at the surface in the vicinity of the point of leakage. It has not been found necessary to carry on continuous investigation work to detect subsurface leaks in these three boroughs, but in Manhattan and the Bronx this work has been prosecuted continuously since 1911, when a special organization was developed which has been under the direction of Fred B. Nelson.

In the latter part of 1919, the force, which previously had consisted of three

engineers, two engineering assistants and ten skilled and unskilled laborers, was increased by adding four skilled and six unskilled laborers, thus making it possible to utilize four gangs continuously. To each gang is assigned a motor truck. When a leak is reported, the complaint is turned over to the local distribution repair company, and if the foreman of that company determines that the leak is a difficult one to locate, he refers it to the special water-waste force. One of the engineers or engineering assistants makes an examination, which frequently includes a laboratory test, to determine whether the water is ground water or city supply. If it is probable that the leak is from the city mains or a house service, soundings are made, using aquaphones, and a determination of water-level in the soil is noted as an aid in determining the probable location of the leak. One of the gang is assigned to uncovering the main at the point determined as being the probable location of the leak. Through the skill

acquired in the location of leaks, it has been found possible to reduce the number of openings required to locate hidden leaks to about 1-2/3, whereas, if this work were to be performed by the regular repair companies, many openings would be needed, judging from past experience.

Some interesting cases of leaks located by the special water-waste force are noted below. A supply of clear water utilized by one of the prominent hotels as spring water for a period of from ten to twelve years, was cut off through the location and repair of joint leaks in a 48-inch water-main located a couple of hundred feet away from the hotel. The increased demand for water through the meter due to the cutting off of the "spring" flow represented a charge of \$5 per day.

A fresh water spring in a swamp in an outlying district which had been patronized for several years because of the superior

quality of the water, dried up when a leak was repaired in a water-main running through this swamp. The quantity of water being discharged through this leak represented an amount sufficient to supply a population of 14,000 people.

It is known that the number of leaks that exist in the boroughs of Manhattan and the Bronx are sufficient to fully occupy the time of the force now assigned to this work, and a record of the cost of the location of the leaks and the stopping of the flow therefrom shows that this work is a very economical way of saving water. In determining the cost of water saved, as set forth in the table below, it has been assumed that in general, if the leak in question had not been located by the special force, it would have continued undetected for a period averaging two years. The record of the work performed since 1911 to the end of 1921 is as follows:

#### SAVINGS THROUGH WATER-WASTE SURVEYS IN NEW YORK CITY

Year	Description	Number of Leaks Located and Repaired	Amount of Leakage Stopped M. G. D.	Cost* per M. G. Saved
1911	Manhattan water-front .....	17	3.50	
1912	General waste surveys.....	33	3.80	
1913	General waste surveys.....	56	5.40	\$3.55
1914	General waste surveys.....	64	11.00	3.24**
1915	General waste surveys.....	106	7.20	2.52
1916	General waste surveys.....	149	12.25	1.34
1917	General waste surveys.....	158	11.35	1.15
1918	General waste surveys and investigations of reported leakage .....	150	11.26	2.08
1919	General waste surveys and investigations of reported leakage .....	173	9.35	3.19
1920	General waste surveys and investigations of reported leakage .....	305	19.77	2.79
1921	General waste surveys and investigations of reported leakage .....	312	16.27	3.83
		1,523	111.15	

$$* \text{Cost} = \frac{\text{Total cost of work}}{\text{m. g. d. saved} \times 365 \times 2.}$$

\*\*Two large leaks totaling 5.5 m. g. d. excluded in computing cost.

## Park Acreages and Park Superintendents' Salaries

IN reply to a request from THE AMERICAN CITY, park superintendents in 107 cities, towns and villages, widely scattered throughout the United States, have recently furnished information as to the salaries they receive and also as to the acreage of the parks in their respective municipalities. From these statements the following table has been compiled:

Range of Population	Cities Reporting	Acreage		
		Highest	Lowest	Average
Over 100,000 .....	9	2,400	100	1,210
50,000-100,000 .....	7	2,799	150	1,086
25,000-50,000 .....	13	240	20	95
10,000-25,000 .....	9	800	4	103
5,000-10,000 .....	19	2,300	2	152
2,500-5,000 .....	15	40	2	17
Less than 2,500....	24	40	1	13

The average yearly salary of park superintendents in cities of over 100,000 population, based on eight reports received, is \$4,019. The

highest is \$9,000 and the lowest \$2,400. In cities with populations ranging from 50,000 to 100,000, the average salary based on six reports received is \$2,733; the highest, \$3,600, and the lowest, \$1,800. In eleven cities of from 25,000 to 50,000, the average salary is \$1,920, the highest, \$2,700, and the lowest, \$800. Four reports of salaries were received from cities of from 10,000 to 25,000. One of these states that no salary is paid, and three superintendents are paid \$750, \$1,200 and \$1,080 respectively. In cities of less than 10,000 population, a large majority report that their work as park superintendent is done voluntarily, and the others are paid only nominal amounts.

In two instances, park superintendents report that in addition to their salary they are provided with a residence.

# Day and Night Storage and Parking of Motor Vehicles

By Hugh E. Young

Engineer, Chicago Plan Commission

## Resume of Present Conditions in Business and Residential Districts of American Cities

(1) Traffic conditions in our cities have made it necessary to regulate the time limit for parking of vehicles, and these regulations, as a rule, are enforced.

(2) The enforcement of the parking time limit is meeting the situation fairly well with respect to the public convenience, but the majority of business firms are not satisfied with the conditions resulting therefrom, and the automobile owner is not as a rule in favor of the parking time limit.

(3) Public areas have not been made accessible for parking, except on minor streets and occasionally public squares and open spaces. For such parking no charge is made, except in a few instances, where a charge of 10 to 25 cents is made.

(4) Public garages provide day storage in the central business districts, but they are generally used to capacity. Vacant lots are used as a rule, and special buildings are now coming more prominently into use.

(5) The parking problem is not a matter of concern in the residential districts, as a majority of residential streets are wide enough and there is sufficient space in private and public garages.

(6) The charges made for storage in public buildings privately owned are too high to be popular.

(7) Business houses, judging by sentiment in Chicago, maintain that adequate parking and storage facilities should be provided before the cars are restricted from parking on the streets.

(8) The parking and storage problem, like any other engineering problem, is largely a matter of cost.

(9) Plans should be made by every city for daytime car storage in the congested district on a comprehensive basis and in accordance with a well-defined and economically sound plan. Provision should be exercised so that haphazard and illogical locations will be avoided.

(10) Parking of vehicles on streets in the central business district is unsound economically, as it forces commercial vehicles to unload from the middle of the street, obstructing moving traffic.

(11) Facilities for parking and storage in most cities exist as circumstances have made them. Some cities have been more favored than others with open spaces, parks, two-level streets, etc. The time is at hand for a real constructive program of providing for parking and storage facilities.

(12) A city thoroughfare is not a parking or storage yard. It is a public highway. The interests and convenience of automobile owners must give way to public necessity. The parking or storing of vehicles on any street when they interfere with moving traffic should not be tolerated.

(13) The economic loss due to delay to the city's commerce caused by parking and storage of vehicles is excessive. In Chicago it is estimated to be \$60,000,000 per year.

(14) Streets should be designed for the traffic they are to carry, both with respect to the type of construction and to the capacity for moving and standing vehicles.

(15) The enforcement of the "no parking" ordinance in Chicago has proved conclusively that, when parking is prohibited, a new moving line is actually created and not a single commercial vehicle is required to stand in the middle of the street in making deliveries. Sixty per cent of deliveries in the central business district of Chicago are made by way of the front of the buildings. The carrying of 30 per cent of these deliveries across the roadway to the curb past the "dead line" is avoided.

(16) Parking of vehicles on streets slows up traffic.

(17) Vehicular movements resulting from cars "milling" around in the business district, jockeying for position, amounting to 30 per cent of the total vehicular movement, are eliminated by the no parking rule.

(18) The enforcement of the no parking rule in the central business district will upset business conditions unless cheap and ample storage space is provided within easy access to automobile users. Sixty-seven per cent of the automobiles are used for business purposes. Statistics show that the majority of owners will not pay a charge of 50 cents a day for storage.

### Suggestions for Improvement of Traffic and Storage Conditions

(1) Parking should be prohibited on all streets in the central business district unless there is ample room for two moving lines of traffic between the street car tracks and the curbs.

(2) Limit parking to 30 minutes, when it can be permitted. This time limit, as compared with unlimited parking, will treble the number of vehicles that can reach business property—a condition obviously beneficial to both business men and automobile owners.

(3) Provide parking space in the central business district by means of multiple floor garages, preferably of the ramp design, when other suitable spaces are not available or appear to be inadequate to meet future needs.

(4) Provide multiple-floor private garages or municipally owned and operated public garages for half-day and day storage in areas immediately outside of and

QUESTIONS RELATIVE TO DAY AND NIGHT STORAGE OR PARKING OF AUTOMOBILES	ALBANY	ALBUQUERQUE	ALBUQUERQUE	BALTIMORE	BOSTON	BIRMINGHAM	CLEVELAND	CINCINNATI	GRAND RAPIDS	HARRISBURG	HARTFORD	LOUISVILLE	MILWAUKEE	MINNEAPOLIS	MEMPHIS	NEW ORLEANS	OMAHA	PROVIDENCE	RICHMOND	ROCHESTER	SEATTLE	ST LOUIS	ST PAUL	TRENTON	CHICAGO	PORTLAND	WASHINGTON	SCRANTON PA	LOS ANGELES	SALT LAKE	% YES	% NO
15 IS THE PARKING OF AUTOMOBILES ON YOUR BUSINESS STS REGULATED BY TIME LIMITS FOR SPECIFIED DISTRICTS OR AREAS?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	100	0
16 ARE SUCH TIME LIMITS ENFORCED?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	86	14
17 IS THIS TIME LIMIT MEETING THE SITUATION ADEQUATELY?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18 POINT OF VIEW OF GENERAL PUBLIC I.E. KEEPING STS CLEAR FOR FREE MOVEMENT?	YES	NO	YES	NO	NO	YES	NO	NO	NO	NO	—	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES	YES	57	43
19 POINT OF VIEW OF THE BUSINESS FIRMS BEFORE WHOSE DOORS AUTOMOBILES ARE PARKED I.E. LEAVING ENOUGH FREE SPACE FOR CARE OF CUSTOMERS AND FOR THEIR OWN DELIVERY TRUCKS?	NO	NO	YES	NO	NO	YES	YES	NO	NO	—	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	NO	YES	NO	NO	NO	NO	43	57
20 POINT OF VIEW OF AUTO OWNERS I.E. MAKING IT PRACTICABLE FOR THEM TO USE THEIR CARS AS THEY DESIRE?	NO	NO	YES	—	NO	YES	NO	NO	NO	—	NO	YES	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	YES	YES	NO	NO	YES	33	67
21 WHAT PUBLIC AREAS HAVE BEEN MADE ACCESSIBLE FOR PARKING?	NONE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
22 A MAJOR OR SIDE STREETS? PUBLIC SQUARES?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
23 WHAT IS THE CHARGE IF ANY FOR SUCH PARKING?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24 DO PUBLIC GARAGES PROVIDE DAY STORAGE IN BUSINESS DISTRICTS? ARE THEY USED TO CAPACITY?	YES	YES	YES	NO	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	86	14
25 ARE UNWANT LOTS UTILIZED?	NO	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	55	45
26 HAVE SPECIAL BUILDINGS BEEN ERIGED FOR DAY STORAGE IN BUSINESS DISTRICTS?	NO	NO	NO	NO	NO	YES	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	47	53
27 WHAT IS THE RANGE OF CHARGES FOR DAY STORAGE IN PUBLIC BUILDINGS?	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	—
28 HAVE OTHER METHODS OF PROVIDING DAY STORAGE IN BUSINESS DISTRICTS BEEN DEvised, AS UTILIZATION OF INTERIORS OF BLOCKS (BACK YARDS OF BUSINESS BLOCKS)?	NO	NO	YES	NO	NO	YES	NO	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	47	53
29 ARE THERE TIME LIMITS FOR PARKING IN RESIDENCE DISTRICTS? ARE THEY ENFORCED?	NO	NO	YES	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	83	17
30 IS THIS TIME LIMIT MEETING THE SITUATION ADEQUATELY?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
31 ARE ALL RESIDENCE STREETS WIDE ENOUGH TO PERMIT PARKED CARS BY BOTH CURBS AND STILL ALLOW TRAFFIC TO MOVE FREELY?	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	70	30
32 DO THERE ENOUGH GARAGE SPACE OR PRIVATE YARD SPACE FOR THE NIGHT STORAGE OF CARS, OR ARE CARS LEFT ON THE STREET ALL NIGHT?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	83	17
33 ARE LEFT ON STREETS?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	83	17
34 IN THE ALREADY BUILT-UP SECTION IS THERE ADEQUATE SPACE FOR PRIVATE GARAGES?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	86	14
35 ARE PUBLIC GARAGES FILLING THE NEED IN APARTMENT HOUSE DISTRICTS? IS PROVISION MADE FOR NIGHT STORAGE OF CARS OWNED BY APARTMENT OWNERS?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	73	27
36 IN NEW DEVELOPMENTS IS GARAGE SPACE, NOT NECESSARILY THE GARAGE THAT MAY BE BUILT LATER, PRACTICALLY ALWAYS PROVIDED?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	88	12

### PRACTISE OF 29 CITIES IN STORAGE OR PARKING OF AUTOMOBILES

Reproduced from a table prepared for the National Conference of City Planning by Hugh E. Young, Engineer, Chicago Plan Commission



within 5 to 10 minutes' walk of the heart of the central business district.

(5) Encourage the construction of garages in connection with new building development in the residential and sub-center districts.

(6) Widen residential streets in congested apartment districts for four lines of

vehicles, two standing and two moving.

(7) Limit parking on business streets and main thoroughfares in subcenters and congested residence sections to 30 minutes, and prohibit double rows of parking on these streets.

ACKNOWLEDGMENT.—From a paper presented at the National Conference on City Planning, at Baltimore, May 1, 1923.

# The "Forêt de Soignes" in Brussels

By Stephen Child

Landscape Architect, Washington, D. C.

THE people of Greater Brussels are, and with reason, extremely proud of their great Forest Park. So closely is it interwoven with their historic past that their feeling for it is even more than pride; it is one of deep affection. The name is really "The Forest of the Sonia"—the little stream now known as the Senne. Near where the stream leaves the great woods was first planted the little town that became the capital city, Brussels. The Sonia Forest was for many generations the hunting ground of the Dukes of Brabant, and the principal source of their revenue.

From time to time the Dukes ceded portions of their forest patrimony to religious orders. The portion given to "L'Abbaye de la Cambre" has now become Brussels' most beautiful park, the famous Bois de la Cambre, the development plans of which were made by a Mr. Keilig, a skilled designer of landscapes. Avenue Louise leads south from the Boulevard-Ring that encloses the medieval city past palatial homes to the Bois, which has now become a noble reception hall to the greater Forêt. The Boulevard de Tervueren leads easterly from the heart of the city to the Park de Tervueren—the Versailles of Belgium. Connecting Bois and Parc and extending southward towards Waterloo is the great Forêt. The existing area is divided as follows:

	Approximate Acres
The Forest proper .....	10,000
The Capuchin Woods and Arboretum...	600
The Domain of Ravenstein (Crown property) .....	700
Tervueren Park (also Crown property)...	500
The Bois de la Cambre.....	330
	11,500

Within this area there are two race-courses with grand stands and training stables, and a great military training ground, soon to be given up and merged into the Groenendael Arboretum, which is really a formal nursery for public parks. The Chateau and Farm of Ravenstein is used as a private golf club, and in the adjoining Capuchin Woods there is an informal arboretum. There are many lakes, ponds and streams in the forest, important factors in the water-supply of Brussels. The forest park is bordered by roads or lanes, and many of the long straight allées that were cut into the woods have been broadened and developed into important thoroughfares. There is a complete system of bicycle paths, and many miles of footpaths, trails and bridle-paths.

The forest is under the care of the League of the Friends of the Forest, the guiding spirit of which is Rene Stevens, an eminent painter, who has become "the familiar genius of the forest." He is seconded by the talented Belgian landscape architect and city planner, Louis Van der Swaelmen. The League guards the grand old beeches and oaks and minimizes monotony by developing stands of birch, ash, pine, hornbeam, alders and various kinds of oak. Native shrubs and wild flowers are encouraged. Except in the arboreturns, no foreign trees or shrubs are permitted. Beech trees seem always to have found here a most agreeable habitat, and there are, particularly in the lovely Bois de la Cambre, many beeches and oaks that are easily 300 or more years old.





*Courtesy of Parks and Recreation*

**CATHEDRAL AISLE OF BEECHES IN THE FORET DE SOIGNES, BRUSSELS, BELGIUM**

# The Value of Donated Park Lands in Building Up a Park System

By Paul B. Riis

Superintendent, Rockford Park District, Rockford, Ill.

**F**OURTEEN years ago, Rockford was without a park system. A few squares and triangles, indifferently kept up, were the nearest semblance to what we to-day understand by the term "parks."

The members of the Rockford Club, composed of local business men, were the first to realize that no adequate provisions had been made in this rapidly growing city for places other than the streets where children might play. The near-by woods—and open places, too—were being rapidly closed to the public, so they concluded that parks and playgrounds were nearly as much of a necessity for a city the size of Rockford as were light and water. On that conclusion they acted, and, through hard work, by a slender majority, voted into being the present Board of Park Commissioners.

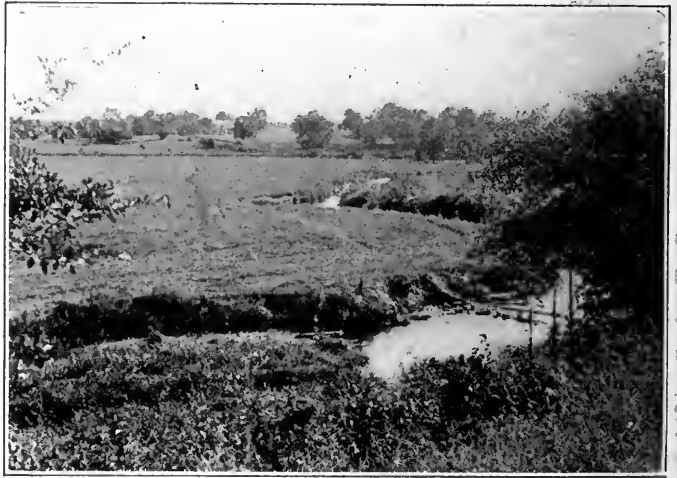
The first act of the newly created Board was the purchase of a wooded tract of 80 acres, now Sinnissippi Park, which in time through additional purchases grew to 124 acres. This park affords one of the finest nine-hole public golf courses in the country.

At about the same time, the City Council turned over to the Park Board the 15 squares and triangles of which they had been custodians, which had a combined area of 35 acres. All these parks, with the exception of about one acre, had been donated to the city administration during its corporate existence of 75 years.

Then followed several purchases of small playgrounds, together with the present Black Hawk Park of 80 acres, and about this time the City Council turned over sev-

eral more small triangles, odds and ends left over from street plats.

In 1911, it became the good fortune of the Park Board to receive as a gift from Mrs. Harriett P. Gilbert of Fort Wayne, Ind., the old homestead in Rockford located on Montague and West Streets, to be named in honor of her parents, "Mandeville Park." This square of approximately  $3\frac{1}{2}$  acres is now a neighborhood park, and is destined to play an important part in the civic life of the foreign section. The old home has been remodeled and made into a



A VIEW IN THOMAS G. LEVINGS PARK, ROCKFORD, ILL.,  
DEEDED TO THE CITY BY THE PRESENT HIGHWAY COM-  
MISSIONER OF ROCKFORD

museum of natural history.

No further purchases of park lands were made for a time, but another donation in 1914 added a valuable piece of property to the rapidly growing system. This consisted of nearly 4 acres, and is now known as Beattie Playground. It is situated in a well-populated neighborhood, where vacant property was at a premium. The grounds, which had been used more or less for play by the children of Rockford for fifty years, were



**CENTRAL PORTION OF THE LIEUTENANT CLAYTON C. INGERSOLL MEMORIAL PARK, ROCKFORD, BEFORE ITS DEVELOPMENT AS A GOLF COURSE**

then known as Ballou Hill. The donors, Mary I. and Anna Beattie, deeded this land, which is valued at \$17,600, to the Park Board in memory of their parents, but it is also a fitting memorial to their own kindly spirits.

Another donation, Franz Park, of 1.98 acres, came to the Board in 1917. This tract, set aside in a new subdivision as an added attraction to prospective buyers, will serve the neighborhood in time to come in the manner predicted for it. Its value is approximately \$3,600.

Morgan Park (0.98 acres), a strip of Rock River frontage, 5 miles south of the City, was also a part of a new subdivision, and was given to the Board that others might follow the lead in furthering the river boulevard project.

Other purchases and several vacations of small parcels of land by the City Council in 1919, brought the number of parks up to 30. It was at that time that Mr. and Mrs. Winthrop Ingersoll gave to the Park Board 110 acres of land, in memory of their son, Lieutenant Clayton C. Ingersoll, who during the war had lost his life in France in an airplane accident. The purchase price of \$33,000 for the tract carried with it \$17,000 additional for the development of an 18-hole golf course, an athletic field and playgrounds. Two adjoining groves were purchased simultaneously by the Park Board as a Memorial Grove for the soldiers and sailors of Winnebago County who served during the European war. This park

has been named the Lieutenant Clayton C. Ingersoll Memorial Park.

The same year, Thomas G. Levings, for many years Highway Commissioner of Rockford Township, a wealthy and respected citizen of our community, deeded to the Park Board a farm of 122 acres. In doing this, Mr. Levings' only stipulation was that the Park Board pay an annual rental during his and his wife's lifetime, leaving it with the Board to re-rent the farm or develop it for public use as they saw fit. Inasmuch as the annual rental is less than would be the interest on the value of the land (\$30,750), and is further reduced by the rent from the farm, the Thomas G. Levings Park can rightly be considered a donation.

The latest gift in the way of park lands came after the death of Mary I. and Anna Beattie, early in 1921. In their will, they deeded to the Park Board their beautiful homestead of over three acres, a few blocks away from the heart of the city. Situated on the shore of Rock River, adjoining the Water Works and Public Library grounds, it is an ideal place for quiet and rest. It is known as Beattie Park.

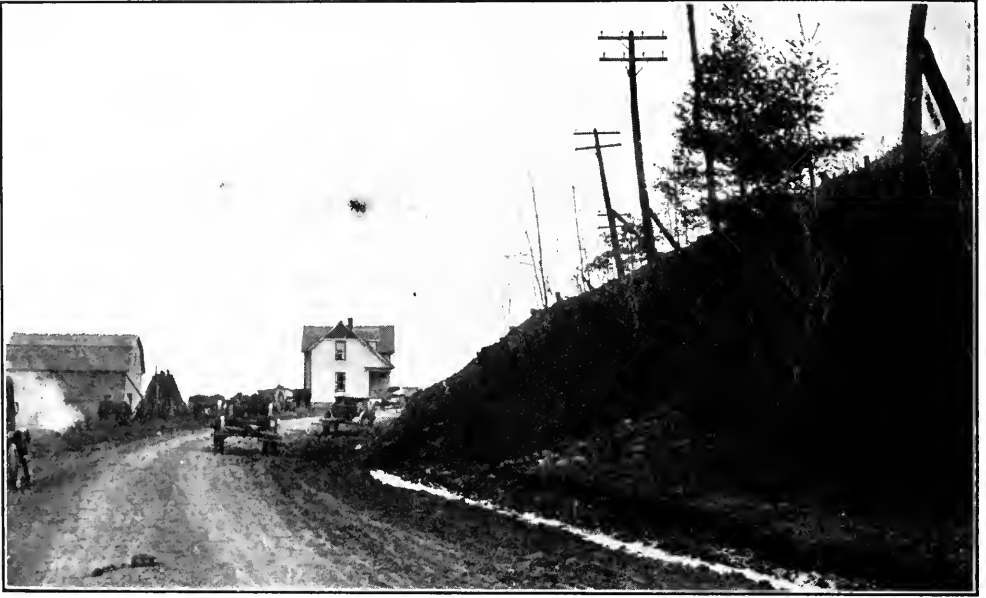
A summary of building up the Rockford park system from the year 1909 to 1922, inclusive, shows the following:

	Acres
20 parks—turned over by City Council...	41.18
7 parks—direct donations .....	246.20
8 parks—purchased by Park Board....	274.50
<b>Total 35 parks</b>	<b>561.88</b>



**PORTION OF THE LIEUTENANT CLAYTON C. INGERSOLL MEMORIAL PARK, FRONTING ON WEST STATE ROAD**

# Making "Cape Horn" Navigable



"CAPE HORN," ON THE HAMILTON-QUEENSTOWN HIGHWAY EAST OF BEAMSVILLE, ONTARIO, CANADA, SHOWING THE SHARP TURN CAUSED BY THE HILL AT THE RIGHT



AFTER THE BLUFF WAS CUT BACK AND THE NEW HIGHWAY LAID, "CAPE HORN" WAS NAVIGABLE WITH GREATER SAFETY AT HIGHER SPEED

# Something New in Street Markers

**H**AVING been charged with the duty of providing street markers for his city, Street Commissioner George W. Pittenger, of Asbury Park, N. J., evolved the idea shown in the accompanying photographs.

The streets had been marked previously a number of times, in the old way, by signs of painted wood or enameled iron, fastened on poles especially erected, on electric light poles, or on trees—in fact, on anything that happened to be convenient at the time. Of course, this gave great irregularity of placement.

His first thought was to put up markers that would be permanent. After several years' study of the problem, which meant miles and miles of travel through different towns and cities, his idea of permanence led to concrete. That was only the beginning. The finished thought is shown in these photographs.

As will be noted, the street names are in vitreous tile, cut mosaic, black letters on white background, surrounded by a black border and ornamented at both ends by a red "Bright Spot Reflector," made by the Wald Manufacturing Company, of Sheboy-

gan, Wis. The letters are 4 inches high and of proper proportions and are easily read for 100 or more feet.



NEW TYPE OF STREET MARKER



STREET NAME ON BASE OF LAMP STANDARD



THE NEW MARKERS INSTALLED ON TWO STREET CORNERS IN ASBURY PARK

The markers are so placed on the ground at the four corners of the intersecting streets, that they always read to the right, directly in the line of travel, so that the autoist does not have to take his eyes off the street ahead to read them while watching traffic. At night, when a driver is looking for a certain street, they are easily read under the headlight of the car.

The signs are ornamental in appearance, and are so placed at the street intersections as not to be an obstruction. They are not more expensive to place than good metal enameled signs on posts, and they have the advantage of eliminating unsightly poles on street corners.

The tile panels are made by the Matawan Tile Company, of Matawan, N. J. They are placed in an iron form, especially made for the purpose, then thin concrete is poured over the tile and the form is filled up with concrete of the proper consistency, and allowed to cure.

They are made by street labor, under the Street Commissioner's direction, and on stormy days when other work cannot be done. The time for casting six is about two hours for two men.

On the Ocean Boulevard, the intersecting street names are cast in the concrete base of the ornamental lighting unit, as will be noted in one of the pictures.

## The Metropolitan District or "Greater Boston"

*To the Editor of THE AMERICAN CITY:*

The reference in your editorial in the May number of *THE AMERICAN CITY* to the Metropolitan District of Boston suggests that your readers may be interested in a brief statement regarding the area and date of establishment of these districts.

In the most inclusive sense, the Metropolitan District, or "Greater Boston," consists of 40 municipalities, including Boston, or 14 cities and 26 towns, all within 15 miles of the State House. The 7 cities in the first zone, i. e., adjacent to Boston, are these—Cambridge, Chelsea, Everett, Newton, Quincy, Revere and Somerville; the 6 cities in the second zone, not adjacent, are Lynn, Malden, Medford, Melrose, Waltham and Woburn. The 6 adjacent towns are Brookline, Dedham, Milton, Needham, Watertown and Winthrop; the 20 other towns are Arlington, Belmont, Braintree, Canton, Cohasset, Dover, Hingham, Hull, Lexington, Nahant, Reading, Saugus, Stoneham, Swampscott, Wakefield, Wellesley, Weston, Westwood, Weymouth and Winchester. The total land area of the district is 409.5 square miles; the estimated population as of January 1, 1923, is 1,800,837.

Within this "Greater Boston" District there are four organized Metropolitan Districts existing for the purpose of construct-

ing and maintaining certain extensive systems of public works under state control. These are:

Metropolitan Park District, established in 1893, including all the cities and towns except Lexington

Metropolitan Water District, established in 1895, including 10 cities and 9 towns, covering an area of 175 square miles

Metropolitan Sewerage District, established in 1889, including 25 cities and towns, and covering an area of 225 square miles

Charles River Basin District, established in 1903, including all the cities and towns excepting Cohasset and Lexington

All four of these organized Metropolitan Districts have for the last three years been in charge of a single state board of five members, known as the Metropolitan Commission. Previously there were three separate boards in charge.

The gross debt of the Metropolitan District in 1922 was \$77,599,512. When a new public utility is projected, it is thoroughly investigated by the Legislature, and the plan is embodied in a statute. Bonds of the district are issued and annual assessments for debt requirements and maintenance are apportioned among the municipalities on the basis of property valuation and population.

WILLIAM T. SEEGER,  
Acting Secretary, Statistics Department, City of Boston.



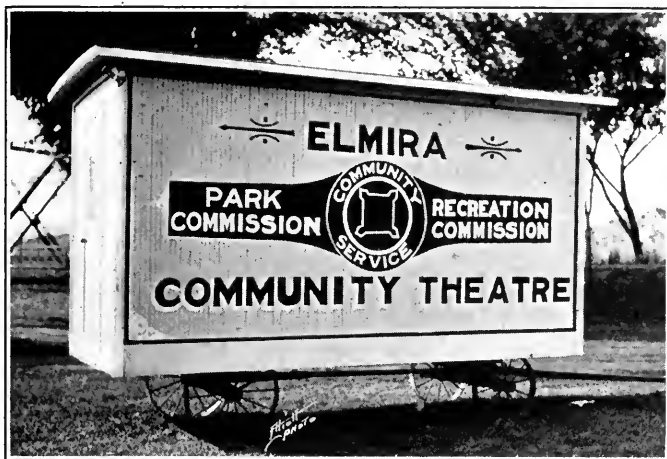
# Elmira Community Service Operates Open-Air Traveling Theater

By Z. Nespor

Executive Secretary, Elmira Community Service

**E**LMIRA'S open-air traveling theater is believed to be the first of its kind. It has been used during the summer to further community singing and playground work in the staging of plays.

The theater was built by the Dunn-Cooper Corporation of Elmira, N. Y. When closed it resembles a small house on wheels with doors at either end. By means of levers and pulleys one side can be opened, giving a stage 16 feet wide and 15 feet deep, and within ten minutes after the theater is placed a play can be staged. It can be very easily operated by one man. It is fully equipped with ten footlights, three border lights, a motion picture screen and a piano. Curtains cleverly arranged on rods make it possible to change the stage setting when long plays are attempted.

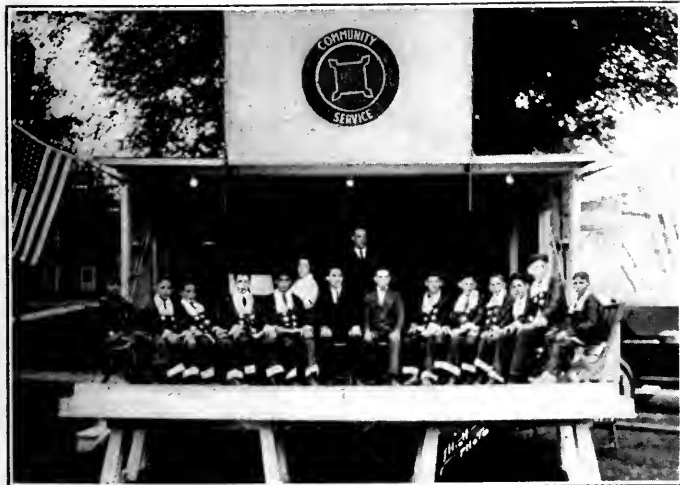


ALL PACKED UP AND READY TO GO

When community singing is featured, a screen for the words is supported at the top of the wagon. The stereopticon machine may be used as a spotlight when not in use for community singing.

The theater is very popular with the playground children. All through the summer months groups are seen rehearsing for various plays. There is great rivalry between the playgrounds to present the best program. Among the plays and entertainments that have been staged on the theater are Cinderella in Flowerland, and Dr. Milk Bottle (a health play).

Special acoustic properties make it possible for the speaking voices to carry very well. During the summer there have been five community sings a week, with an average attendance of from 1,000 to 3,000, or a total attendance of 60,000.



THE Y. M. H. A. USING THE ELMIRA COMMUNITY THEATER FOR A MINSTREL SHOW

# The County Library

A Factor of Growing Importance in Satisfying the Nation-wide Hunger for Books and Adult Education

By Anna A. MacDonald

Consulting Librarian, Library Extension Division, State Library, Harrisburg, Pa.

ONE of the astounding developments of the day is the clamor for an education. The public schools are full, high school classes have increased enormously, colleges are turning students away, night schools and summer schools are crowded, and individuals are studying wherever they can get the books they need.

And this is a logical result of our having builded our national life and our form of government upon the foundation of an educated citizenry. The Great War gave us our first opportunity to test the value of the system of public education we have evolved, and in spite of the discovery, through the draft, of an alarming percentage of illiteracy and of subnormal intelligence, the value of our plan was definitely proved. We simply discovered its limitations. We saw that the public schools can give only the foundation; if we are to have the intelligent citizens needed by a democracy, we must give them the chance to study the things which interest them, whatever the age or condition may be and wherever they may live.

To do this we need books and more books, on all subjects, selected and graded to fill the needs of all, so placed and administered that all may have free access to them. Thus, while the child is being trained in school to use books other than his textbooks, he is increasing the value of the time spent in school by almost one-third, and is laying the foundation for the fuller education which he may later build up for himself.

Naturally, the free public library is expected to fill this demand, to aid and supplement the school work, and to "carry on" after school days have come to an end. And the county library is the only possible plan by which this public library may be made available to all.

It is comparatively easy for the cities and larger towns to have efficient libraries,

but it is impossible for the smaller towns, the villages and the rural communities to do it alone. It is the same old truth, proved many times, that through cooperation there is strength; the larger unit may function more effectively, more economically and more satisfactorily than the smaller units.

So the county has been generally taken as the best unit for public library work. It is not too large to be administered successfully, and yet is large enough to keep the expense from being prohibitive. The value of the plan has been proved. At least twenty-eight states have county library laws. That of California is based upon this idea, and fully half of its counties are organized, so that now the library sign is found scattered all over the rural districts wherever there are enough people to read the books. Indiana has a number of county or township libraries organized; so have New Jersey, Wisconsin, Tennessee and other states. Two pioneer examples in the East are the Washington County Library, Hagerstown, Md., and the Brumbach County Library, Van Wert, Ohio. And for fifteen years the Susquehanna County Library has been successfully carried on from Montrose, Pa.

## Its Functions and Advantages

The county library functions in this way: It is established and supported by the county authorities, with the purpose of giving impartial, disinterested library service throughout the county, in proportion to population and needs. There will be a trained librarian in charge, with offices at the county-seat. She will select the books and distribute them, adapting the city library system to country conditions. There will be branch libraries with local librarians, in all of the towns in the county that are large enough to warrant a library and reading-room. In the smaller villages, there will be deposit stations in some such



public place as a store, and traveling libraries for the still smaller communities, the rural school, rural Sunday schools, grange halls, etc.; and finally, the book truck to hunt out the more isolated families, get them interested and leave books at their doors.

Its advantage is free public library service for all, in the most efficient and economical way. The books will be bought more advantageously from one center; and the technical work, such as classifying and cataloging, will be done better by one group than by several. The books will be more carefully mended, rebound, and generally cared for, and so will last much longer. Books not read in one station may

library service helps to even up the opportunity for the farmer or other country dwellers, as the telephone, the automobile, the good roads and rural mail delivery have done; it places the "People's University" within reach of all, in the most isolated home, in the most inexpensive and effective way; it carries on public education to the limit of the receptive powers and inclination of each individual; it furnishes wholesome recreation and pleasure; it is the best backing for the community life.

The foundation for this work has been laid by the state library commissions which for twenty-five years have been sending traveling libraries throughout the rural districts. These little libraries have blazed the



A COUNTY LIBRARY ON WHEELS

be sent on to a station where they are new, and replaced by books new to those readers, and thus many more people may have the use of the same book. Each community will have the benefit of the supervision given by a trained worker.

Any resident of the county may have the privilege of requesting special books, and these requests will be filled so far as it is possible. The same thing is true for material needed for essays and debates and for club papers. Such books, magazines or pamphlets may be sent promptly by bus, trolley or mail, and questions may be answered by telephone.

And, possibly most important of all from an economic point of view, the county

path and have proved the need and possibility of such service. There are "good readers" in every place; the number of them may be small, but the quality is there, where reading brings larger returns than in an environment where there are more diversions. The hunger for books and adult education is nation-wide. It is not a quality peculiar to the urban or the suburban dweller. The rural sections desire and should have a fair share in libraries. And as the urban dweller depends upon the rural for his bodily food, he in return owes something to the rural man and should help him get some of these things that count but do not come directly from the soil—his mental food.

# Minimum Recreational Requirements of Small Towns and Villages

By E. C. Lindeman

Specialist in Social Research

**S**MALL towns and villages include population clusters of fifty families or five hundred people and all the intermediate towns up to a population of one thousand families or five thousand people. Not many towns within this classification possess the wealth necessary to maintain a separate civic department devoted to the promotion of recreation. The following recommendations are based upon these considerations:

## Equipment

Every village and town should have at least one playground for younger children. This space should have an area of a minimum of one-eighth of an acre. Playgrounds for smaller children should provide shade from the sun; if trees are not available, artificially shaded spots should be provided. An eighth of an acre playground should have at least four sand-boxes, each capable of accommodating six to ten children. The sand should be selected in such manner as to prevent infection of diseases, and should be disinfected annually.

Towns of 500 and upward should provide an athletic park suitable for baseball, football, field hockey, basket-ball and volley ball for persons above fourteen.

Each village and town should provide an indoor place for the following types of recreation: indoor baseball, basket-ball, volley ball, group games, and gymnastics. The minimum floor space should be 40 by 60 feet. The flooring should be of hard wood. Such room or hall should provide bathing facilities for persons taking part in games.

## Supervision

The responsibility of promoting a constructive recreation program for the younger children of a small town should rest with the school authorities. One teacher of each school should be employed with the thought in mind of utilizing a portion of her or his time in play and recreation supervision. Such persons should be selected because of their training and interest in recreation.

The school authorities will be greatly helped in their recreational efforts, if the town supports them by means of a voluntary playground and recreational association. This association may assist in creating sentiment favorable for organized play, financing the program, securing leadership for summer work, and training local, resident leadership.

Small towns should avail themselves of all advice and assistance from such agencies as the county Y. M. C. A., Y. W. C. A., Boy Scouts, Girl Scouts, etc., in supplying the recreational needs of their various age groups. These agencies should also be enlisted in the program of training local leaders. Competitive teams in baseball, basketball and football should not be organized unless there is some trained person in the community qualified to train the players.

The supervision of the playgrounds for younger children should be in the hands of persons who have been carefully selected for their ability and for their understanding of child life. Best results from a recreation program are realized when the supervisors are paid for their work. Volunteer leadership should be used as frequently as possible, but the steady, year-round program needs persons who take professional interest.

## Finances

Small towns should finance their recreational programs from three sources: the public school board, the town or city government, and private subscriptions. After permanent equipment has been provided, the minimum amount necessary for promoting an adequate recreation program should be \$500 per year for a village of 500 population, and \$2,000 per year for a town of 5,000 population. About three-fourths of these amounts should be expended for supervision and one-fourth for renewals.

ACKNOWLEDGMENT:—From "Attainable Standards in Municipal Programs," published by the University of North Carolina, Chapel Hill, N. C.

# Forward Steps in City and County

## **Publicity and Organization Save Denver's Civic Center**

DENVER, COLO.—Idealism triumphed in Denver's regular municipal election May 15, when the people of that city voted two to one to locate the proposed city and county building upon what is known as the



DENVER'S CIVIC CENTER AS IT IS

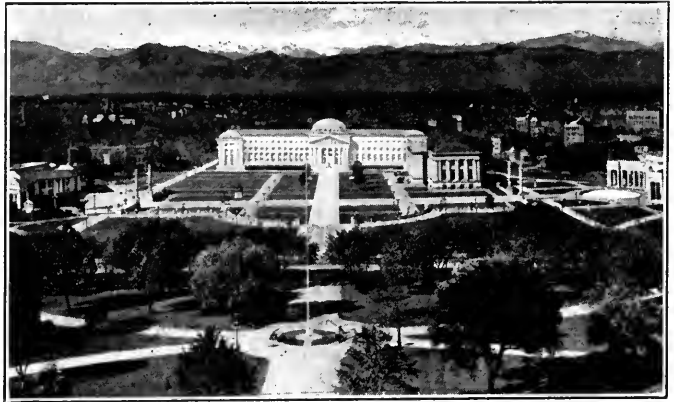
Civic Center site, and also voted a bond issue of \$500,000 to purchase this land.

Since the Civic Center plan was first launched, in 1906, the location of a new city and county building has been a moot question. Some of the largest realty owners in the business district have favored the present court house site for the new city and county building, and have consistently fought the location on the Civic Center, although the latter site has always been made an absolute condition in the Civic Center plan by all landscape architects who have had any connections with this city's development.

During 1922 several efforts were made by semi-public institutions to secure the Bannock Street

site, facing the Civic Center. The School of Commerce of Denver University acquired several lots on this site for a new structure last year, but public opinion against such use of this ground was so strongly expressed through newspapers and periodicals, that the University authorities very patriotically and generously withdrew the plan and secured land elsewhere. Some months after that, a local contractor secured six lots on this block for the erection of a Veterans' Bureau building. Again the friends of the Civic Center agitated the question so strongly that the City Council took the matter up and held a public hearing. At this hearing the contractor showed a very fair disposition, saying that he had no desire

to impede the city plan, but that he was under contract and that if the city did not erect this building within a certain time, it should either withdraw its plan entirely or condemn the lots, so that he could proceed with the erection of the building elsewhere. The City Council, therefore, authorized



DENVER'S CIVIC CENTER AS IT WILL LOOK WHEN THE CITY AND COUNTY BUILDING IS ERECTED

condemnation proceedings against these lots, as the friends of the Civic Center realized that the question must be settled once and for all. A \$500,000 bond issue was advocated, but those opposed to the Civic Center location were strong enough to have submitted on the ballot an alternative plan for location of the city and county building on the present court house site.

A Civic Center Extension Committee was formed to conduct a campaign for the completion of the Civic Center in accordance with the plans favored by the landscape artists and former Mayor Speer. For months this committee, composed of many of the most prominent business men of the city, members of women's clubs, representatives of every local improvement association in the city, representatives of union labor—in fact, representatives of every class—met to build up public sentiment for the Civic Center site. Just before election a portfolio was issued, showing various views of the Civic Center from the time the ground was first bought, up to the present, containing also a message from the Civic Center Extension Committee, urging the people of Denver to uphold the original Civic Center plan. The direction of a firing squadron of a hundred prominent women was intrusted to Miss Anne Evans, one of the most influential members of the Denver Art Association. The portfolios were distributed by hand throughout the city, the women making personal appeals wherever they delivered a portfolio.

The committee was headed by Robin H. Davis, Chairman, retiring President of the Denver Civic and Commercial Association; I. J. Keator, Vice-Chairman, prominent South Denver realtor; John Evans, President of the International Trust Company, and others. The leader in the movement was Henry Read, who was first president of the Municipal Art Commission and first suggested a Civic Center in 1904.

EDGAR C. MACMECHEN,  
Editor, *Municipal Facts*.

EDITORIAL NOTE.—*Municipal Facts*, Denver's bi-monthly journal of information for its citizens, of which Mr. MacMechen is editor, also aided in the campaign. Among other features was a large half-tone view of the civic center site on which an artist had "visualized" the proposed city and county building. A smaller reproduction of this picture, and of the photograph of the civic center as it now appears, are shown on the preceding page.

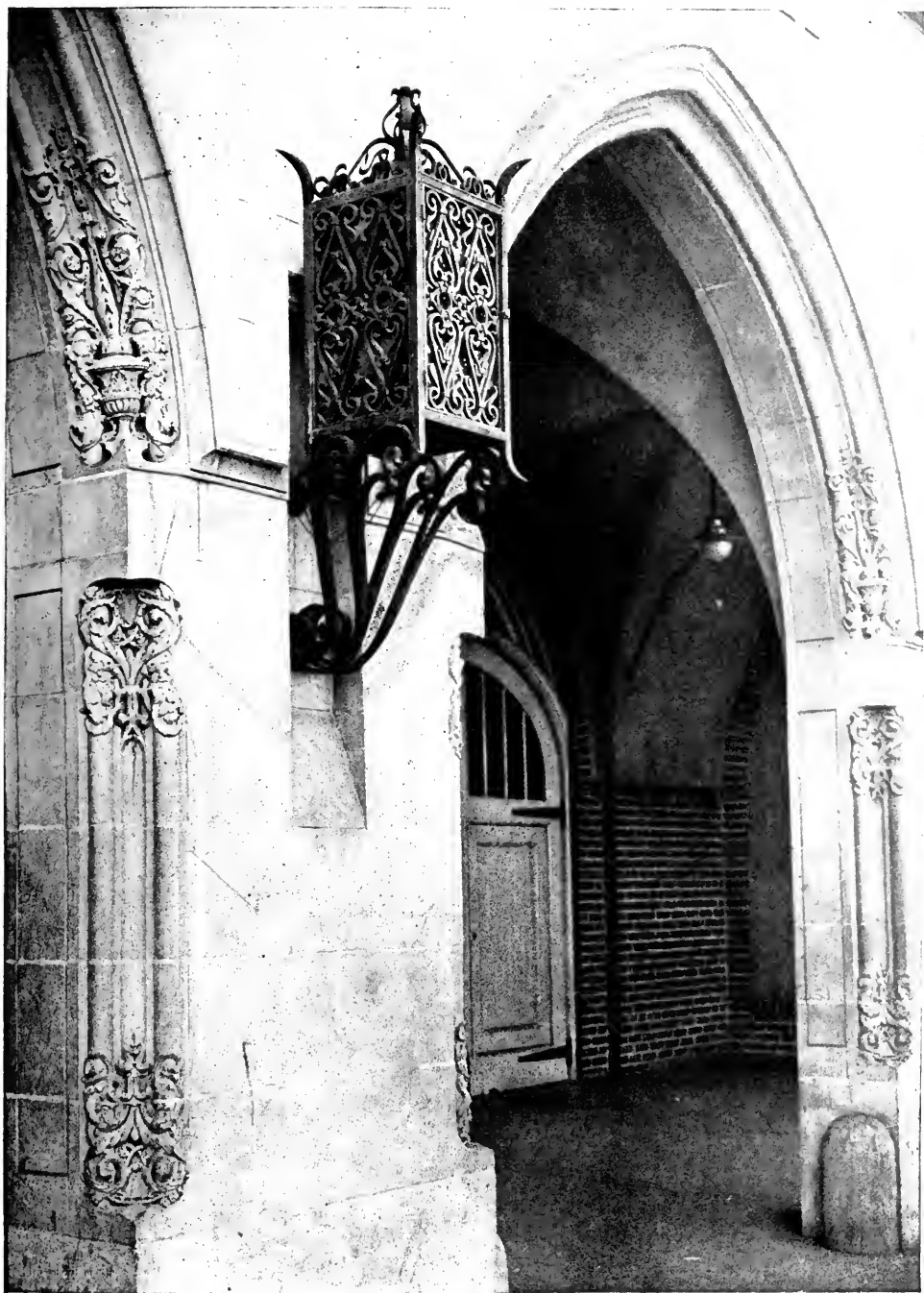
## ***How Littleton Secured Its Combination Town Hall and Fire Department Headquarters***

LITTLETON, COLO.—When city officials of a village of 1,600 population are confronted with a building project, they have little experience to fall back upon. None of us had any precise knowledge of what we wanted or how to obtain it. There was a great demand for a large assembly hall and also an absolute need for a place to keep our fire truck. Town officials needed offices and committee rooms, but, above all these, there was a desire to have some expression of the town's development during the last forty years.

Our charter limited the amount of the appropriation available for a Town Hall. The site of the old building was owned by the town, and this site could not be sold except by special vote of the people. Taking into consideration the limitations of money and delays of building if a new site were obtained, it was decided to build on our old site and thus have our Town Hall on Main Street in line with stores and other buildings. This brought forth objections from certain quarters, especially from citizens who demanded that the Town Hall should be an outstanding building in design and bear an aspect of distinction that would imply its purpose. This phase of the matter we decided to leave to our architect, whoever he might be, and include in our instructions a request that among other primary considerations a façade of Town Hall character should dominate the design.

Our next step was to select an architect. We advertised an open meeting of the Town Council where architects might state their ideas and claims in person. Our hopes were to have as many architects as possible compete, and thereby to gain a great variety of ideas, assemble all these free ideas into one composite idea and have the winning architect boil down everything thus gained into a splendid all-round idea.

This scheme did not work well, for when the assembled architects learned that our limit of cost was \$25,000, they declined to compete, but agreed that one of their members would accept the commission as architect outright and the others withdraw. The Town Council was asked to accept this situation. J. B. Benedict of Denver, who was



*Courtesy of The Architectural Record*

ONE OF THE THREE ENTRANCE ARCHES OF THE TOWN HALL IN LITTLETON, COLO.

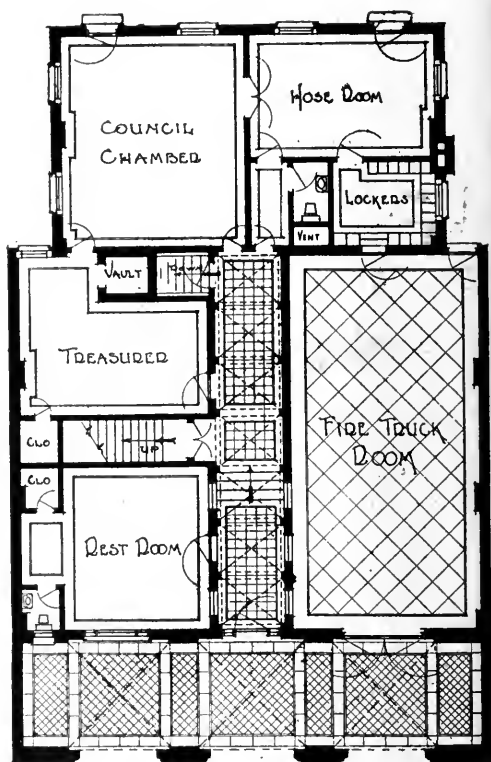
our architect for the \$8,000 Carnegie Library, was given the commission.

The results are obvious from the accompanying illustrations. The costs were as follows:

Contract price of building August 26, 1919	\$22,886.00
Plumbing and heating additional.....	1,839.00
	<hr/> \$24,725.00

These included everything except decoration of interior walls, and outside lamps. The lamps were made by Mr. Benedict from the remains of some iron balconies and donated to the building by him. We had valuable cooperation from other sources, including the Denver Terra Cotta Company. This company, at the instigation of the architect, not only gave us the terra cotta exterior at cost, but sent men from its plant daily to supervise the setting. The millwork was done at cost, as well as the ornamental iron work. Indeed, all who had any connection with the construction of the building were most generous in their donations of time and materials.

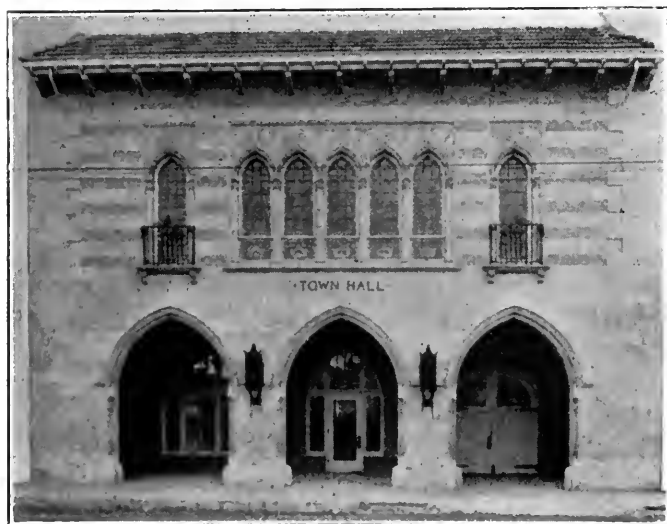
This building perhaps betrays inspiration from northern Italian examples, and yet it has a characteristic local expression in details and materials. Its look in our nearly Tuscan climate is not foreign. In details it has a marked personality. The state flower, the columbine, has been conventionalized into the seven horizontal bands of incised ornament of the second story. The Rocky Mountain eagle has also been



FIRST-FLOOR PLAN OF THE LITTLETON TOWN HALL AND FIRE HEADQUARTERS

introduced in the lunettes over the second-story windows. The pointed arches of the ground floor arcade, the tops of the lamps, balcony grilles, second-story windows, and the double bracketing of the cornice, all suggest aspiration and purpose and action, contrary to the contemplative round arch treatment generally employed. The architectural expression of northern Italy is eminently suitable to Colorado, if modified and intermarried with our local requirements. It is the final selection of style of the University of Colorado for all future buildings—a gratifying form of approval.

E. A. FRANCIS.



FACADE OF LITTLETON'S TOWN HALL

### ***A Civic Music Commission and Its Plans***

WINSTON-SALEM, N. C.—The Board of Aldermen of Winston-Salem has recently created the Winston-Salem Civic Music Commission, and has appropriated funds for its work and maintenance. The Commission, composed of a group of citizens who are particularly interested in community music, is to take charge of all musical activities in the community, and the work will be carried on under the direction of the Supervisor of Music of the Public Schools. Heretofore, such activities have been conducted jointly by the Rotary Club and Salem College.

The activities of the Commission were formally started on April 30, with a recital by Madame Amelita Galli-Curci as the first of a series of concerts by prominent artists. Arrangements are also being made for orchestral concerts to be given regularly in all sections of the city throughout the summer, and the Commission plans to conduct a Summer School of Music from June 25 to August 4. The courses of instruction at the school will be in charge of a number of vocal and instrumental artists, who have been engaged by the Commission to come here at that time.

Through the concerts, the Summer School

of Music and the various other activities of the Civic Music Commission, we hope to give music its proper place in the life of the community.

WILLIAM T. RITTER,  
Secretary, Winston-Salem Chamber of Commerce.

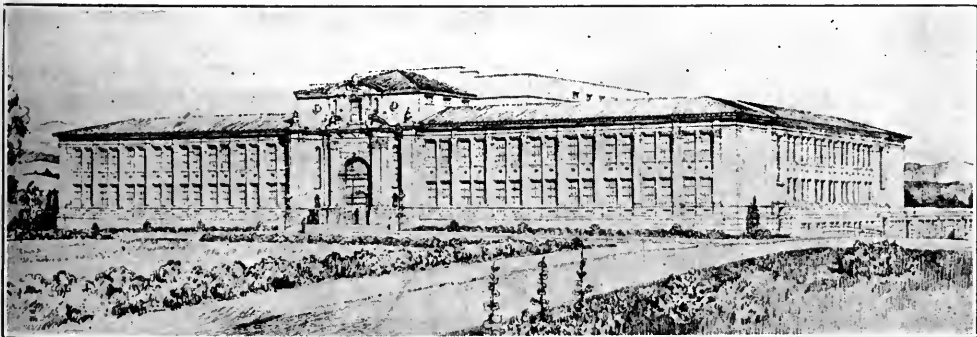
### ***A New High School That Was Worth Working For***

OAKLAND, CALIF.—The Theodore Roosevelt High School in Oakland, when finished,



**BREAKING GROUND FOR THE NEW HIGH SCHOOL IN OAKLAND, CALIF.**

will be one of the most complete high schools in the West. Its erection is part of the building program of approximately five million dollars authorized at the bond election of October 21, 1919. The campaign that preceded this election was a very active one, and one of its most ardent participants was Mrs. Nellie C. Lane,



**THE THEODORE ROOSEVELT HIGH SCHOOL, OAKLAND, CALIF.**



shown in the accompanying picture of the ground-breaking for the new school.

The facilities of the new school provide for a wide academic and vocational training. There are twenty general classrooms, and an auditorium seating 1,500, besides a lecture room, a library and textbook room, four study halls, two music rooms, two rooms for chemistry and two for general science, besides one each for biology and physics. Five rooms are devoted to stenography, typing and accounting. The girls of the school find ample accommodation for activities in cooking, sewing and millinery. There is a studio and an applied arts room, and shops for auto work, woodworking and general mechanical activities. A gymnasium and a general exercise room give the essential equipment for physical training. The teachers have three rooms for their own use, besides a lunchroom.

Such a school building as this will be a high-grade community center of inestimable benefit.

FRED M. HUNTER,  
Superintendent of Schools, Oakland.

### ***A Profitable Swimming Pool***

FORT WORTH, TEX.—One of the most popular places of amusement in Fort Worth last summer was the newly constructed swimming pool in Forest Park, which was opened about seven weeks after the start of the season. Notwithstanding this rather late opening, approximately 140,000 persons made use of the pool, and by charging an admission fee of 20 cents for adults and 10 cents for children, we cleared \$15,217 above all overhead expenses.

The pool is 250 feet in diameter, and is a perfect circle, built in the shape of a bowl, being 18 inches deep at the outer edge and sloping gradually to 10 feet in the center. It has a capacity of 1,900,000

gallons. The pool is constructed entirely of concrete and steel, 94,000 pounds of structural steel having been used in its erection. The floor is 6 inches thick, and the outer rim is 18 inches thick and 6 feet deep, with a concrete sidewalk 10 feet wide surrounding it. It has a 6-inch intake which runs continuously, and a 12-inch outlet, the drain emptying into a small brook near-by.

The complete cost of construction of the pool was \$35,000, with an additional expenditure of \$20,000 for a bath-house providing 1,200 lockers.

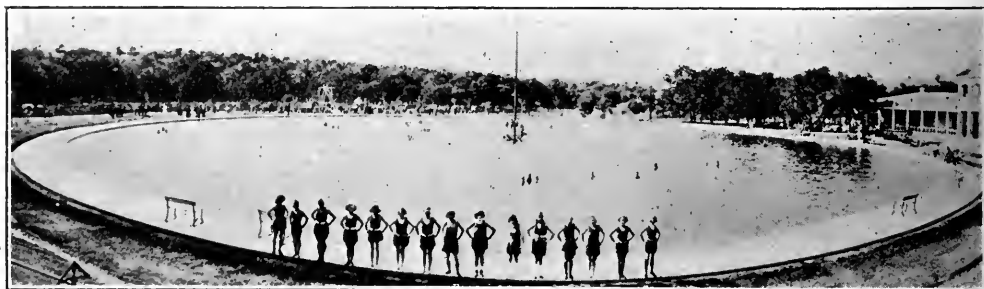
GEORGE C. CLARKE,  
Superintendent of Parks, Forth Worth, Tex.

### ***Mechanicville Adopts Model Milk Ordinance***

MECHANICVILLE, N. Y.—On May 28 the city of Mechanicville adopted the model milk ordinance recently recommended by a joint committee representing the New York State Department of Health and the New York State Conference of Mayors and Other City Officials. It is the first city to take this action.

The model ordinance, which becomes effective October 1, 1923, in Mechanicville, flatly rules out all milk except certified, Grade A raw or pasteurized, and Grade B pasteurized. Since the high grades of raw milk are necessarily limited in production and sale, the ordinance means in effect that cities must require pasteurized milk for the general supply. This is in line with the best scientific and practical opinion of the present day, which holds that pasteurization is the only effective method of insuring a safe general milk supply under conditions which exist in large centers of population.

E. J. HUNT,  
City Clerk, Mechanicville.



PORT WORTH'S CIRCULAR SWIMMING POOL



# Advances in Producing Clean Streets

By F. W. W. Doane

City Engineer, Halifax, Nova Scotia

THE adage "Cleanliness is next to godliness" is particularly applicable to city streets. Roadways and sidewalks should be cleaned and kept clean, not just because good housekeepers otherwise might notice the dirt, but because it is nothing less than a crime for a city not to have its streets clean. The extraordinary alteration in traffic conditions has made a corresponding change in the street-cleaning problem on busy streets. The motor vehicle seems to be ousting the horse. That means that the equine trail is less often left on our thoroughfares, where, if not removed promptly, it will dry and grind until it can be blown by every breeze into the mouths and nostrils of passer-bys.

While horse droppings are disappearing or in some cities have been almost entirely eliminated, there are dust, refuse, oil slime, and dirt always present where modern traffic makes its way. The road builder, the maintenance man and the street cleaner must cooperate, because holes, hollows, ruts and cuts are the worst enemies the good street-keeper has. If the road is not smooth, the best cleaning system will not clean it or keep it clean. The more promptly the repairs are made and the road restored to smoothness, the better for cleanliness. For the same reasons, repairs must not merely restore the surface, but must be durable.

In the last thirty-two years street conditions in the old garrison city of Halifax have undergone a great change. In 1891 there was not a yard of paved street, except water-bound macadam, and the gutters were paved with cobblestones from the salt water beaches. The joints between the stones held the dirt, and weeds and grass grew readily. It was impossible to clean the gutters with a broom, and the cleaning squads were equipped with a light gutter pick especially made for the work. With this implement each joint was raked out, the bulk of the dirt shoveled off, and the remainder brushed out with brooms specially made of birch switches.

## The Advantage of Smooth Gutters

The cost of cleaning these cobble gutters was eight times the cost of similar work on stone or concrete gutters. In 1891 the city, realizing that while it might possibly be saving in first cost by using them it was losing heavily in maintenance, decided for smooth gutters and the beginning of a paving policy. This meant that the money which at that time would clean only 220 yards of street gutters, would, after the change was made, clean 1 mile.

At that time the horse scraper and horse sweeper were in use, and they continued in service for many years. The official in charge of street cleaning kept in close touch with progress in street-cleaning machinery and from time to time inspected so-called improvements. About the time the Great War broke out, a machine, first made in Austria, promised to fill the re-



WHITE WING WITH CAN CARRIER AND SCOOP, IN HALIFAX, N. S.



MOTOR STREET-CLEANING APPARATUS USED IN HALIFAX, N. S.

quirements, but the war settled that. About the close of the war, American-made machines, having surmounted early troubles, were placed on the market with promise of good service. The city of Halifax purchased one, and the result has been not only satisfactory cleaning but at reduced cost, especially on paved roadways.

The machine cleans paved streets carrying lighter traffic, without any assistance except that of its chauffeur. All cleaning is done in daylight, because there are still many horses, especially from the surrounding country. It is considered desirable that horse droppings should be removed as promptly as possible. On heavy-traffic streets the machine is operated before and after heavy-traffic hours.

Flushing is restricted as much as possible. It is not so necessary on Halifax streets as on those of large cities, because an accumulation of slimy coating so common in the latter is a rare occurrence in Halifax. Also, it is much cheaper to remove dirt directly from the street than from the catch-pits and sewers. Flushing dirt into the catch-pits is a good deal like sweeping dirt behind the door or under the bed. When the dirt can be picked up, I believe it should be disposed of in that way. The fine dust and slime can be thoroughly and sanitarily removed only by flushing, and material of that nature is not liable to form deposits in either catch-pits or sewers.

#### Cleaning Catch-Pits

The work of cleaning catch-pits has undergone a radical change since long years of experiment have resulted in the modern

eductor; up to a few years ago this work was all done by hand. The filthy deposits were shoveled or hoisted out on the roadway, and the black liquid draining from them did not add to the health and comfort of the public, to say the least. The hired carts in which the mess was removed were rarely tight, and the drip from them could be traced all the way to the dump. In warm weather the odor at times added one more nuisance to try the patience of the pedestrian. Not the least objection to such a system was the heavy cost of the hand work.

The use of the machine removes most of the objectionable features, and does the work at about one-third of the cost, or, to put it the other way, three times as much work can be done now for the same expenditure.

Neither the motor sweeper nor the catch-pit cleaner is popular with labor, for obvious reasons. The general public, however, takes a different view, and the first appearance of these motor machines was applauded by pedestrians on the streets. The public began to realize that the additional work and the greater efficiency may mean valuable lives, and it is more than civic pride that makes them call for the best that they can afford.

While the motor sweeper and the motor catch-pit cleaner have reduced costs and expedited work, the motor car has become an obstruction that bothers the sanitary force more than any other single feature. Parked cars, unless prohibited altogether, prevent the thorough cleaning of the whole roadway. A regulation requiring cars to

park one foot from the curb is of some assistance where it is practicable to comply with it.

Halifax uses white wings on paved streets carrying heavy traffic, to prevent accumulation of refuse and horse droppings during the day. The public are inclined to regard white wings as ordinary labor, but a good white wing is a mighty good man. It is difficult to find him or to replace him. Watch the white wing and then judge for yourself.

The winter in the capital of Nova Scotia brings its own trouble for the street department. It was believed at first that heavy snowfalls would mean retirement for motor vehicles, but the trying experience following the explosion in the winter of 1917-18 demonstrated that they can operate in any kind of weather. The motor truck and the motor snow loader have brought this branch of the work in line with the rest; as a matter of fact, we have used our catch-pit cleaner to plow snow.

Unimproved roadways are still cleaned by hand with the aid of the horse broom and the scraper where they can be used. However, greater progress has been made in

improving the sanitary condition of streets during the last ten years than in twenty years preceding. That progress has been made possible by dirt and dust prevention, rather than by improved methods of removal.

Education and regulations have done much to reduce the quantity of refuse accumulating. The paving of streets has made a heavy reduction in cost of cleaning, but the principal cause of decrease in quantity of dust accumulating is the Tarvia treatment of roadways. Not only does it make for cleaner streets, but it means a large reduction in cleaning cost, second only to that resulting from paving roadways.

The cost of cleaning by hand such a roadway as shown, before paving, runs at times from \$20 to \$30 per 1,000 square yards. Hand-cleaning paved roads costs 61 cents per 1,000 square yards; machine cleaning 21 cents.

Catch-pit cleaning costs, by hand \$2.85 each; by machine 97 cents; the lowest tender for hand cleaning was \$3.10. Machine costs include interest, depreciation and all maintenance charges.

## Water Used to Handle Coal and Ashes

### Power-Plant of Philadelphia Water-Works to Use New Method

**I**NNOVATIONS for the removing of ashes and the conveying of coal are to be introduced in Philadelphia in connection with that city's water-supply. In each case water will play an important part in the operation, and both installations are expected to facilitate the work and also to reduce the labor cost of conveying coal and removing ashes to and from the station.

Under the former method of operation, the coal was delivered by a railroad to a bunker located some distance from the pumping-station, and from this point it was transferred to the station by teams of motor trucks. With this method the cost to the city of transporting the coal from the bunkers to the pumping-station averaged about 20 cents per ton. By the new method it is estimated that the cost will be not more than 5 cents per ton and it is expected that the coal will be in much better

condition for use, owing to the cleansing action of the water.

Under the new method the coal will run from the bunker into a hopper. Near the outlet of the hopper are two pipes so arranged that the outlet of one pipe is on one side of the mouth of the hopper and the entrance to the other pipe is directly opposite to this, as shown in the accompanying illustration. A stream of water under 100 pounds pressure is driven through the pipe across the face of the hopper. As the coal comes into the hopper, it is caught by the water and carried across the mouth of the hopper.

Push-cars back of the boilers are used under the existing system to remove ashes. The hot ashes are placed in these cars and transported to receptacles, to be finally taken away by motor trucks. This method is not to be entirely abolished, but the

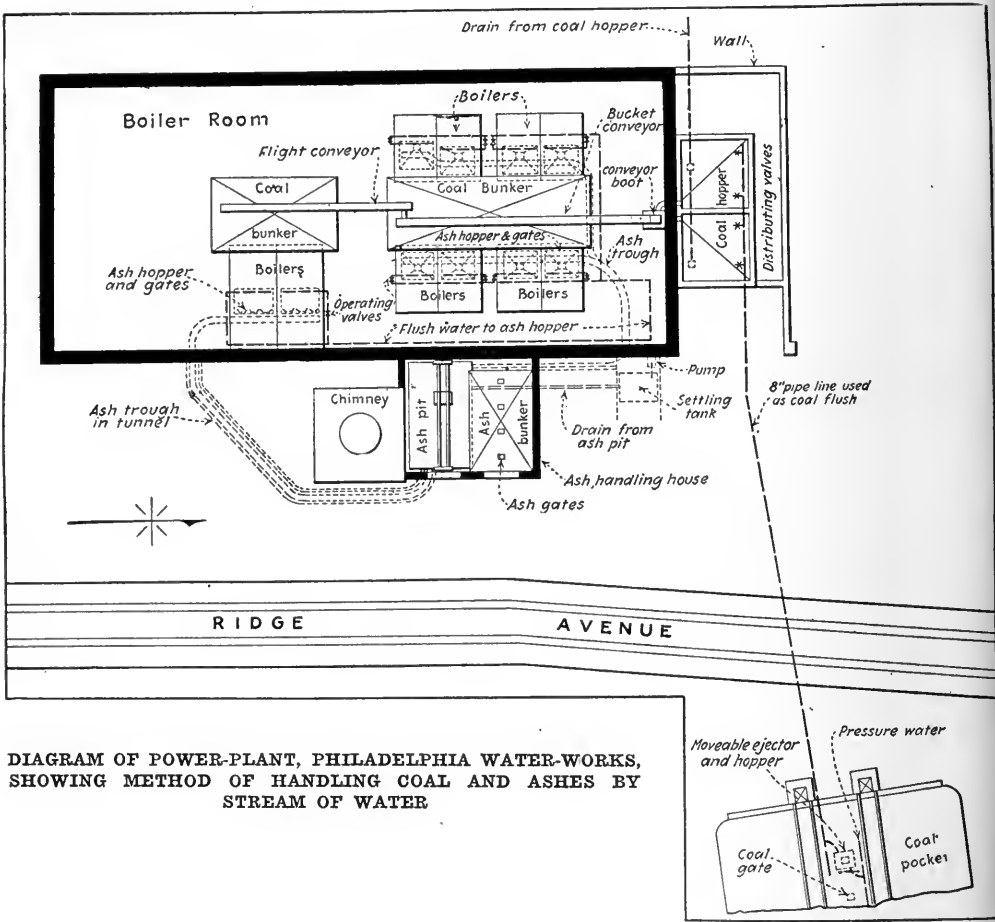


DIAGRAM OF POWER-PLANT, PHILADELPHIA WATER-WORKS, SHOWING METHOD OF HANDLING COAL AND ASHES BY STREAM OF WATER

ashes will be removed from the boiler room by streams of water. As the ashes come from the grate, they will be dropped into a trough in which flows a stream of water. The ashes will thus be cooled and all dust eliminated. The water will move with sufficient force to carry the ashes to a bin

so equipped that they will be drained. They will then be lifted by buckets to a hopper, from which they will be loaded into motor vehicles and taken away. This system has worked out very satisfactorily.

ACKNOWLEDGMENT.—Illustration and text from a recent article in *Electrical World*.

## Denver Adjusts Its Gas Rate Dispute

ON May 21 the Mayor and Council of Denver came to an agreement with the Denver Gas & Electric Light Company to settle a dispute of several years' standing in respect to excess charges by the company. The franchise of the utility provides that all charges over 75 cents per thousand feet shall be returned to the city. These excess charges since 1920 have amounted to \$1,184,000. The city has withheld \$525,000 due the company for electric light charges. A compromise was reached whereby the city paid the company its

debt, and the company immediately paid the city \$592,000 in cash, with agreement that the remainder of the debt is to be paid in quarterly installments of \$50,000; the company to recognize the validity of the excess charge clause of its franchise. The city had previously won a decision on this point in the District Court, and the case was pending on appeal in the Supreme Court. Mayor Bailey has announced that money received from the utility from these excess charges will be placed in the building fund for a new city and county building.

# Inspection and Fire Record Systems of the Bridgeport Fire Department

By Daniel E. Johnson

Chief Engineer, Fire Department, Bridgeport, Conn.

EVERY member of the Bridgeport Fire Department devotes one day each month to fire inspection work. The Department is organized on the two-platoon basis, half of the men working on night shift from the first to the sixteenth of the month, the shifts being then reversed and

Form 351

Company No. \_\_\_\_\_

Bridgeport, Conn. \_\_\_\_\_ 192\_\_\_\_

CHIEF OF DEPARTMENT:

Sir:

I respectfully submit the following report of the operations of this

Company at the Fire No. \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_ 192\_\_\_\_

\* FIRST: The \_\_\_\_\_ alarm was received at \_\_\_\_\_ o'clock \_\_\_\_\_ M. from box No. \_\_\_\_\_. The Re-call was received at \_\_\_\_\_ o'clock \_\_\_\_\_ M.

\*\* SECOND: There was \_\_\_\_\_ delay in leaving quarters and reaching fire, caused by \_\_\_\_\_

a THIRD: The hydrant used was located \_\_\_\_\_ and was found to be in \_\_\_\_\_ condition.

FOURTH: The supply of water was \_\_\_\_\_ average hydrant pressure being about \_\_\_\_\_ lbs. Average pressure on line \_\_\_\_\_ lbs. Average steam pressure \_\_\_\_\_ lbs.

FIFTH: The hydrant was left in \_\_\_\_\_ condition.

\* SIXTH: There was \_\_\_\_\_ delay in laying in and getting stream on fire, caused by \_\_\_\_\_

Number of feet laid, First line \_\_\_\_\_ size of nozzle \_\_\_\_\_ Second line \_\_\_\_\_

The supply of water was \_\_\_\_\_ and the estimated number of gallons of water used, averaging 250 gallons per minute for a 1½ stream for a total working time, was \_\_\_\_\_ gallons.

as SEVENTH: How damaged or destroyed, and cause \_\_\_\_\_

EIGHTH: Ladders used \_\_\_\_\_

NINTH: Ladders damaged \_\_\_\_\_

TENTH: Number of hand chemicals used \_\_\_\_\_ number of tanks used \_\_\_\_\_ which were filled at \_\_\_\_\_ by \_\_\_\_\_

ELEVENTH: The Company was on duty at the Fire \_\_\_\_\_ hours \_\_\_\_\_ minutes out of quarters \_\_\_\_\_ hours \_\_\_\_\_ minutes, return to quarters by order of \_\_\_\_\_

TWELFTH: Distance traveled was \_\_\_\_\_ feet.

THIRTEENTH: Reported at quarters, as on duty \_\_\_\_\_ M.

FOURTEENTH: Accidents and cause \_\_\_\_\_

Commanding \_\_\_\_\_ Co. No. \_\_\_\_\_

\* State whether first, second, third, or special alarm, and if a "still" how received.  
\*\* If there was a delay, state how long, and mark correct the word "No" and strike out "caused by" (Truck Companies read ladder instead of stream).

\* State whether engine, out of order, or in good condition.

as If hose burst, state at what pressure, and number of lengths from steamer. Also state the make of hose and date put in service.

## FORM OF REPORT RECEIVED FROM EVERY FIRE COMPANY IN BRIDGEPORT THAT MAKES A RUN

On the back of the form is space for reporting the men who attend the fire, and the reasons for the absence of others. These reports, with other information, are transferred to the standard loose-leaf forms furnished by the National Board of Fire Underwriters, and are filed in book form for reference

## FIRE REPORT

Date of Fire \_\_\_\_\_ 192\_\_\_\_

Box \_\_\_\_\_ Time \_\_\_\_\_ M Re-call \_\_\_\_\_ M

Still \_\_\_\_\_ Time \_\_\_\_\_ M Re-call \_\_\_\_\_ M

Location \_\_\_\_\_

Material of Building \_\_\_\_\_ No. of Stories \_\_\_\_\_

How occupied \_\_\_\_\_

Owner \_\_\_\_\_

Occupants, 1st Floor \_\_\_\_\_

2d. Floor \_\_\_\_\_

3d Floor \_\_\_\_\_

4th Floor \_\_\_\_\_

Cause of Fire \_\_\_\_\_

Was fire confined to building in which it originated? \_\_\_\_\_

Was fire confined to room in which it originated? \_\_\_\_\_

## LOSS RECORDED

	VALUE OF PROPERTY INVOLVED	LOSS THEREON	INSURANCE THEREON	INSURANCE LOSS THEREON
Building				
Contents				

Remarks: \_\_\_\_\_

Agents

## FORM OF REPORT RECEIVED ON EACH FIRE IN BRIDGEPORT, FROM THE CHIEF ENGINEER OR HIS SUBSTITUTE

the other shift going on night work for the rest of the month. The inspection work is done during the day following the release of the men from night work.

The inspection work has a double value—it reduces the number of hazardous conditions, and it familiarizes the men with the districts, buildings and exits. Inspections are also made by eight men in the Fire Prevention Bureau, whose entire time is devoted to this work. In the spring of each year, these men are assigned to the residential sections of the city, to see that stovepipes, furnaces and other heating devices are in good condition. While they

Form 316

Notice of Violation of Ordinance, Relative to Fire Prevention

AND  
Order Concerning Same

To \_\_\_\_\_

You are hereby notified that an examination of the premises known and designated as \_\_\_\_\_

which examination has been made in accordance with the provisions of an ordinance of the City of Bridgeport adopted June 16th, 1917 entitled "An Ordinance Creating a Fire Prevention Bureau in the City of Bridgeport" shows that the following conditions exist on said premises which are dangerous to the public safety and are in violation of said ordinance—to wit:

Therefore in accordance with the terms of said ordinance you are ordered to make the following changes—to wit:

All to be done and completed on or before the \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_  
By order of \_\_\_\_\_

Chief Engineer of the Bridgeport  
Fire Department.

FORM OF NOTICE OF VIOLATION OF FIRE-  
PREVENTION ORDINANCE

are making these inspections. the men of the engine companies cover the business sections. This work is all done under the supervision of the Chief Engineer.

A thorough system of forms for reporting fires is in use by the Bridgeport Fire Department, and has proved very effective. In addition to the blanks which accompany this article, the standard record forms of the National Board of Fire Underwriters are in use. These include a large double sheet in book form, headed "Daily Report of Fires," and single-page loose-leaf sheets for monthly reports of the various engine, truck and chemical companies.

The Bridgeport Fire Department has been organized on the two-platoon basis since April 1, 1918. It is under the supervision of a bipartisan board of Fire Commissioners, consisting of the Mayor, ex-officio, and four members.

The Chief is the executive head of the de-

CLASSIFICATION OF BRIDGEPORT FIRES IN  
1922

Alarms	Cause	Loss
159 Grass fires .....		\$105.00
113 Rubbish and dump fires.....		973.43
58 Chimney fires .....		1,979.40
54 Automobiles .....		5,717.00
39 Matches .....		2,387.30
.. Fires to which Department did not respond (35) .....		1,581.63
32 Careless smoking .....		5,117.68
31 Spontaneous combustion .....		9,777.64
30 Department called when not necessary .....		.....
29 Stoves .....		3,041.00
27 Unknown .....		71,224.70
26 Electric appliances .....		5,503.13
24 Sparks .....		2,855.00
16 Bonfires .....		425.00
16 False alarms .....		.....
15 Furnaces .....		1,507.00
15 Gas plates, etc.....		878.20
13 Department called for other than fires .....		.....
10 Food in gas range.....		1,600.00
10 Gasoline .....		921.00
9 Incendiary .....		11,954.95
9 Hot ashes .....		570.00
.. Exposure (9) .....		15,689.50
6 Thawing out pipes.....		1,330.00
5 Painter's torch .....		750.00
5 Out-of-town calls .....		.....
4 Lighting .....		280.00
3 Fireplaces .....		165.00
3 Candles .....		322.00
3 Boats .....		215.00
3 Heater exploded .....		15.00
2 Lamps .....		202.25
2 Stove rags .....		20.00
1 Overheated dryer .....		1,200.00
1 Vulcanizer .....		700.00
1 Trolley car .....		75.00
1 Fireworks .....		25.00
1 Soft coal pile .....		.....
1 Hot metal.....		.....
1 Bag of charcoal.....		10.00
778		\$149,187.81

FIRES CLASSIFIED AS TO BUILDINGS—1922

Reinforced concrete .....	9
Fire-proof (steel frame) .....	...
Brick and stone .....	102
Ironclad buildings .....	...
Frame buildings .....	275
Concrete block .....	...
Buildings not classified .....	...
Other than buildings .....	392
Total .....	778

RECORD OF BRIDGEPORT FIRE APPARATUS FOR 1922

COMPANIES No.	Times Water Used	Times Chemicals Used	Average Distance Traveled Feet
1 Engine.....	15	13	353,098
2 Engine.....	10	38	804,768
3 Engine.....	15	42	748,636
4 Engine.....	21	32	864,082
5 Engine.....	21	3	445,931
6 Engine.....	9	4	599,098
7 Engine.....	8	27	527,249
8 Engine.....	23	23	571,678
9 Engine.....	6	15	311,476
10 Engine.....	13	25	790,716
11 Engine.....	5	12	305,939
12 Engine.....	18	21	898,048
1 Truck (ladders).....	2,124 ft.	3	1,098,240
2 Truck (ladders).....	2,917 ft.	...	551,569
3 Truck (ladders).....	2,239 ft.	...	1,080,466
1 Chemical.....	...	123	2,319,016
2 Chemical.....	...	55	1,236,749
3 Chemical (water)....	5	77	181,052
Water.....	169	513	13,787,801 ft.
Ladders.....	7,280		or 2,601 miles

partment and is responsible for efficiency and discipline. He has authority to make assignments of men, but they are not permanent except by order of the Board. All officers have risen from the ranks. The total force numbers 266 and includes the following: chief, 1; assistant chiefs, 4; superintendents of machinery, 1; captains, 21; lieutenants, 17; chief's drivers, 6; engineers, 12; assistant engineers, 12; hose-men, 123; laddermen, 43; fire alarm force, 12; Fire Prevention Bureau, 8; repair shop, 5; clerks, 1.

The equipment of the Department consists of 13 stations and 43 pieces of motor-driven apparatus, including 12 pumping engines, 10 combination hose wagons, 3 75-foot ladders, 2 combination trucks, 3 chemicals, 3

chief's cars, 3 reserve cars, and 7 work and supply cars. The water pressure at the hydrants is 70 pounds. There are 49 private hydrants and 1,436 curb hydrants. The alarm system is the Gamewell Manual System, recently installed and entirely modern.

The maintenance cost of the Fire Department in 1922 was \$644,646.06. The total fire loss for that year was \$149,187.81, a per capita loss (on an estimated population of 145,000) of only \$1.02. In 1921 the per capita loss on the same estimated population was \$1.09, and in 1920, \$1.30—figures which are much lower than the average for other cities in the United States having a population of more than 50,000 inhabitants.

## Costs of Local Government in New Jersey Cities and Towns

By Sedley H. Phinney

Executive Secretary, New Jersey State League of Municipalities

THE Bureau of Municipal Information conducted by the New Jersey State League of Municipalities has compiled an analysis of the costs of local government in New Jersey cities and towns, exclusive of schools, giving budget figures for 1923 and 1922, percentages of increase or decrease, and per capita cost of local government.

The municipalities in which the per capita costs of local government are highest are naturally the shore resorts, in which the census population is far lower than the large and constant stream of transients. Thus, in Atlantic City the per capita cost is \$76.20; in Asbury Park, \$38, and in Long Branch, \$35. The average for all the cities of the state is \$29.79, and for the towns, \$23.33 per capita.

In municipal campaigns one hears a great deal of loose talk about tax rates; and in the last legislative session in New Jersey there was even an attempt to pass laws regulating local tax rates. As a matter of fact, the tax rate is a very poor criterion by which to judge comparative costs of local government. Many factors of the tax rate are not under the control of the

local governing body. Moreover, a high tax rate may not mean a high cost of local government, but merely a low percentage of true value in the assessments.

A much better criterion by which to judge local government costs is the total budget figure and the cost per inhabitant, but even these must be taken with a large grain of salt. The high per capita cost of government in Atlantic City does not indicate an extravagant administration. It is high because there is a tremendous floating population to protect, house, amuse and care for. If the average population throughout the year were used in the computation, a much lower figure would result. The congested conditions of Hoboken and Jersey City make necessary police, fire and traffic protection, public health and building inspections and many other services that are less costly or unnecessary in smaller places. Again, the costs of water-supply developments undoubtedly enter largely into these figures. The financing of large public works enterprises probably accounts for many of the large fluctuations in the budget totals.

Comparative statistics must be used with



great caution and with careful attention given to local conditions and to the values received for the taxes paid. A city with high government costs may furnish many more services than one with a low cost. It may have such excellent health services that its death and disease rates are at a minimum. It may collect its garbage and refuse daily, while its neighbor lets its citizens pay for such services to private scavengers. It may have to furnish extra police protection against the crooks and heavy traffic resulting from proximity to a metropolis. High costs do not necessarily

mean inefficiency, and low costs may indicate official negligence rather than economy.

There is no royal road to low taxes or costs of government. Citizens should pay careful attention to the details of the budget and inquire as to the necessity for the services given and to the economy of their operation. Instead of that, we find poor attendance and public indifference at the budget hearings, with vigorous but ill-informed protests when taxes must be paid. The thing most needed is intelligent, informed public opinion.

# COSTS OF LOCAL GOVERNMENT IN NEW JERSEY CITIES AND TOWNS

CITIES	Population	Budget for Local Purposes (Except Schools)		Per Cent of Difference From 1922 Budget		Per Capita Cost of Local Govt., Except Schools
		1923	1922	Increase	Decrease	1923
Newark .....	414,216	\$13,371,150.00	\$12,514,651.85	6.8%	.....	\$32.30
Jersey City .....	298,079	11,783,988.59	9,999,518.28	17.8	.....	39.50
Paterson .....	135,866	2,879,189.99	2,825,329.32	1.90	.....	21.20
Trenton .....	119,289	2,544,309.13	2,501,812.02	1.70	.....	21.30
Camden .....	116,309	2,708,591.99	2,501,178.12	8.30	.....	23.30
Elizabeth .....	95,682	2,038,347.21	2,069,228.97	.....	1.51%	21.30
Bayonne .....	76,754	2,121,868.45	2,941,716.73	.....	27.8	27.60
Hoboken .....	63,166	2,523,713.12	2,653,753.54	.....	4.9	37.00
Passaic .....	63,824	1,405,777.08	1,312,076.82	7.1	.....	22.00
East Orange .....	50,710	1,501,916.91	1,304,429.94	15.1	.....	29.60
Atlantic City .....	50,682	3,362,062.25	3,255,340.94	18.6	.....	76.20
Perth Amboy .....	41,707	968,685.37	921,083.77	5.2	.....	23.80
Orange .....	33,268	679,161.94	654,575.75	3.8	.....	20.40
New Brunswick .....	32,779	772,744.60	853,131.05	.....	9.5	23.60
Plainfield .....	27,700	734,677.50	696,733.00	5.4	.....	26.50
Clifton .....	26,470	366,263.74	397,702.76	7.8	.....	13.80
Garfield .....	19,381	249,808.50	436,285.07	.....	19.8	12.00
Hackensack .....	17,667	452,282.39	395,959.10	.....	14.2	25.60
Millville .....	14,691	167,803.00	145,229.00	15.5	.....	11.40
Bridgeton .....	14,323	212,624.33	200,323.47	6.1	.....	14.80
Long Branch .....	13,521	472,688.12	410,730.77	15.0	.....	35.00
Asbury Park .....	12,400	479,733.88	461,269.67	20.5	.....	38.00
Gloucester .....	12,162	237,469.66	205,280.00	15.7	.....	19.50
Englewood .....	11,617	348,316.64	277,913.89	25.3	.....	30.00
Rahway .....	11,042	233,319.00	253,047.64	.....	7.8	21.00
Summit .....	10,174	320,731.02	320,783.77	.....	0.016	31.60
Burlington .....	9,049	131,150.00	139,981.90	.....	6.3	14.50
Totals for cities...	1,797,523	\$53,559,374.41	\$50,649,567.14	17.4	.....	\$29.79
TOWNS						
West Hoboken .....	40,068	\$659,572.64	\$639,249.27	3.2	.....	\$16.50
West New York .....	29,926	864,777.06	768,600.98	12.5	.....	28.80
Montclair .....	28,810	1,086,005.27	1,002,435.81	8.3	.....	37.60
Kearny .....	26,724	733,959.08	680,813.72	7.8	.....	27.40
Irvington .....	25,480	536,916.28	400,610.42	34.0	.....	21.90
Bloomfield .....	22,019	433,809.08	384,881.91	12.8	.....	19.70
Union .....	20,651	415,340.64	644,101.24	.....	30.9	21.60
Phillipsburg .....	16,923	233,907.56	215,982.98	8.3	.....	13.80
Harrison .....	15,721	373,638.13	351,941.54	5.9	.....	23.60
Belleville .....	15,660	348,970.79	249,934.65	39.3	.....	22.30
West Orange .....	15,573	422,165.74	455,128.75	.....	7.2	27.00
Morristown .....	12,548	255,043.53	269,874.16	.....	5.5	20.30
Dover .....	9,817	113,746.71	123,075.49	.....	3.6	12.10
Nutley .....	9,421	232,346.23	192,657.05	17.2	.....	24.60
Westfield .....	9,026	217,148.59	196,536.56	9.5	.....	24.10
Totals for towns...	298,367	\$6,961,248.03	\$6,575,264.53	17.03	.....	\$23.33

# Chamber of Commerce Activities in Public Affairs

## ***Florida Abolishes Convict Leasing and Whipping***

TAMPA, FLA.—The recent disclosures concerning the leasing of convicts and whipping practises in Florida counties came as a shock to the majority of the people in the state, and public sentiment against such conditions was immediately aroused.

The matter was promptly taken up by the Legislative Committee of the Tampa Board of Trade, and a resolution was adopted urging the State Legislature to bring about the abolition of the system of leasing convicts, as well as the removal of officials and prompt prosecution of all individuals found to have been criminally liable in bringing upon the state the disgrace of the use of the lash and other inhuman treatment of prisoners. Similar resolutions were also adopted by chambers of commerce and various other civic organizations throughout the state.

The result of these resolutions and of the publishing of editorials in the newspapers of the state expressing the opinion of the general public on the subject, has been the abolition of the leasing of county convicts and the practise of whipping, and the enactment of other legislation regarding the supervision of prisoners, with a view to preventing any recurrence of the former abuses.

L. P. DICKIE,

Managing Secretary, Tampa Board of Trade.

## ***Boulder Votes to Retain Pro- portional Representation***

BOULDER, COLO.—As Boulder is one of the few cities in which the proportional representation method is used in electing the City Council, special interest attaches to the recent unsuccessful attempt to repeal the charter. After a period of five years, Boulder's charter and the Hare System of voting were attacked through a so-called Citizens' League, which organization sought to oust the present City Manager and Council. A representative of the Proportional

Representation League visited Boulder and assisted in the campaign against the proposed amendments to the city charter. The Boulder Chamber of Commerce had initiated the present form of government several years ago, and took an active part in the campaign, which resulted in a two-to-one vote in favor of the Hare System of voting.

Boulder has had ten miles of new street paving since the city manager form of government went into effect, and a large paving program is being initiated at the present time. This city is spoken of as one of the most progressive in the state of Colorado.

CHAS. R. STREAMER,

Secretary, the Boulder Chamber of Commerce.

## ***Better Housing Conditions for Fruit Workers***

DINUBA, CALIF.—The Dinuba Chamber of Commerce, seeing the need of better housing conditions among the fruit workers, set to work to help remedy this condition. A committee of five members was appointed, consisting of an architect, a lumberman, a real estate dealer, an insurance man, and one member chosen at large who was deeply interested in moral welfare. This made it possible for all points of view to be considered in arranging for housing.

Plans for a bungalow court were prepared and given publicity. As a result of this effort, a prominent financier of the city, H. T. Haden, built such a court, consisting of several houses. The houses are small, containing three rooms each, and are furnished with electricity. The porches are extended so that shelter is provided for cars.

Seeing the advantages of these small homes in giving the transient fruit workers a chance for better living conditions and an opportunity to become more nearly permanent in their residence, Mr. Haden is now building another bungalow court for families of small incomes. The houses in the court are to be somewhat larger, and



## Power!

The "Caterpillar"\* excels on every contracting and engineering job and in public works of all kinds because it has ample power to pull the largest size road-making tools and to transport the heaviest tonnages under every working condition. Not only has it ample power but the "Caterpillar" has the reserve strength which Holt's long experience has proved necessary to meet emergencies.

Where the job is too difficult for any other kind of tractor, or for horses or mules, the "Caterpillar" goes in and does the work at the lowest cost and in the shortest time. In the "Caterpillar" power is not represented merely by superior motor construction, but by the total volume of work, year after

year. *Investigate the latest "Caterpillar" from the standpoints of power, capacity and long service.* You will agree it has no real competitor. It is the soundest investment for any City, Park Board, County Official or Contractor.

Our factory locations at Peoria, Illinois and Stockton, California, our numerous branches and distributors are all equipped with complete service stocks, providing an accessible and efficient service-to-owners that is unequalled. Back of this service is Holt's positive guarantee of endurance and continued satisfactory performance. The 2-, 5- and 10-ton "Caterpillars" meet every power need. Let us prove it on your work.

*\*There is but one "Caterpillar"—Holt builds it.*

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STOCKTON, CALIF.

Chicago, Ill.  
Minneapolis, Minn.  
Indianapolis, Ind.  
Canadian Holt Company,  
Ltd., Montreal

of different arrangement than the smaller houses. One of the accompanying pictures shows the type of buildings in this court. These buildings are wired and plumbed, making very nice homes. Mr. Haden states



ONE OF THE HOUSES IN DINUBA'S BUNGALOW COURT

he will build more such courts. Others are considering building.

Realizing that there is still another class of workers that could not be induced to remain permanently and must have adequate housing accommodations while residing here in order to do more efficient work and live under more sanitary conditions, the Auto Camp Committee was asked to plan some suitable site where the fruit workers might camp during the busy season. With the assistance of the committee, one of the members of the Chamber of Commerce, O. H. Brians, has now equipped a fine camping ground on his property, one mile west of the city. Several tent houses of one room each have been constructed. Large trees shade the grounds, making a restful place for the workers to camp in. The other picture shows a view in this park.



A TENT HOUSE IN THE AUTO PARK IN DINUBA, CALIF.

The owner also has a store and service station in connection with the grounds. The grounds are well lighted, supplied with gas, shower-baths and rest rooms, and are sanitary in every respect.

In addition to providing temporary homes for several hundred fruit workers, Mr. Brians has the park so arranged that auto tourists find here a desirable camp site for the night or a few days. The spirit of cooperation shown by the members of the Dinuba Chamber of Commerce has thus made it possible for the city to have the advantages of additional housing and a camping ground that is a credit to any city.

E. E. WIKER,  
Secretary, Dinuba Chamber of Commerce.

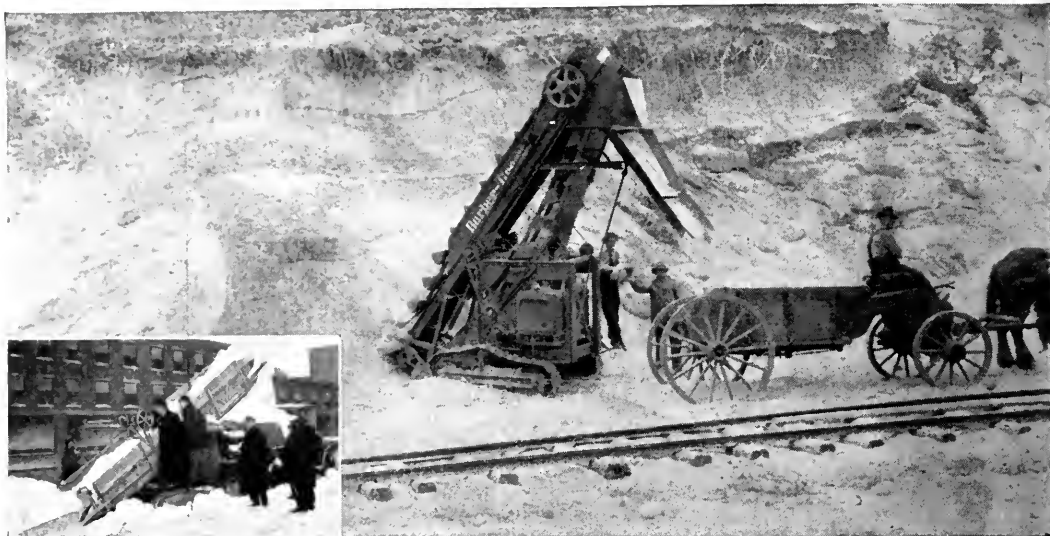
### ***Honoring Newly Naturalized Citizens***

CANTON, OHIO.—Under the auspices of the Americanization Committee of the Canton Chamber of Commerce, special exercises were held in the auditorium of the McKinley High School on the evening of May 17, in honor of a class of fifty-six newly naturalized citizens. The committee in charge, of which E. J. Landor, third Vice-President of the Chamber, is chairman, arranged an excellent program, which made the affair one of the most thoroughly worth-while events that have been staged under the Chamber's auspices.

A special feature of the exercises was the public presentation of the naturalization papers. This was done somewhat after the custom of presenting diplomas at graduation exercises. The members of the class were seated in a body, and each one was called to the platform individually for the presentation of his papers. Aside from the

welcoming of the class as a whole, each man was given an individual welcome by a representative of the Common Pleas Court, and the Daughters of the American Revolution presented each with an American flag and a copy of the Constitution of the United States.

Hon. Harry F. Atwood of Chicago made the principal address of the evening, speaking on the subject of "The Constitution." The affair was



A Barber-Greene Snow Loader converted into a Bucket Loader and handling gravel

## Gravel in Summer—Snow in Winter

*How a Barber-Greene and 2 men replace a gravel-loading gang in summer—and 60 men in winter*

**I**N Worcester, Mass., the street railway company decided to solve the snow removal problem with a Barber-Greene Snow Loader—just as many municipalities have solved it.

In this class of work the Barber-Greene saves 60 shovel men in some cities—and according to officials of the Boston "L" as many as 200 under certain conditions.

To put the Barber-Greene to work in summer also the Worcester company changed it into a Barber-Greene Bucket Loader—by replacing the snow-loading boom with the bucket-loading boom.

Like other street railway companies and many municipalities, they have found that in loading gravel for construction work the converted Barber-Greene replaces a gang with one man.

They have also found the Barber-Greene useful in other ways. For instance, when the track shown in the photograph reproduced above was too far away from the bank, the Barber-Greene was used

to pull the entire track closer to the pit. No track gang at all was required to help the loader operator and his helper in this work.

The present high cost and scarcity of labor are influencing more and more municipalities to solve the winter snow and the summer construction problem at one stroke by putting a Barber-Greene to work.

Its automatic disc-shoveling device is so effective that it handles stone, gravel, and similar construction materials without even requiring shovelers for the clean-up work.

It is converted into a Snow Loader by replacing the bucket-loading boom with a snow-loading boom.

Its success is due to its design and to the fact that it is the product of a company that has for years specialized in material handling equipment.

Details about its construction performance are freely furnished upon request.

BARBER-GREENE COMPANY—Representatives in 33 Cities—515 W. Park Avenue, Aurora, Illinois

**BARBER**  **GREENE**  
Portable Belt Conveyors Automatic Disc Feed of the B-G Loader Self Feeding Bucket Loaders

largely attended, invitations having been extended by the Chamber to the various public officials, clubs and lodges, and societies composed of men of foreign parentage. The night schools of the city also cooperated. A large number of the men who received their papers have been studying in the night school Americanization classes.

GUY CLEMMITT,  
Publicity Manager, Canton  
Chamber of Commerce.

### ***Getting Out the Vote for Sacramento's Big Bond Issue***

SACRAMENTO, CALIF.—

That the vigorous, progressive spirit of the sturdy pioneers of '49 is still existing in Sacramento is evident from the recent bond election for civic improvements. On May 16, just a year from the opening of Sacramento's great "Days of '49" celebration, the citizens united in putting over a municipal bond issue to the amount of \$1,967,000.

The improvements called for included street improvements, improvement of entrances to the city, a municipal auditorium, better fire and police alarms, a stronger levee on the Sacramento river-front, the extension of the water and sewer system, additional fire equipment, subways, etc.

Many of the votes secured at the election were recruited by the use of the telephone and a corps of girl assistants. The conversation over the telephone was about as follows: "Speaking for the Citizens Committee, Mrs. \_\_\_\_\_, we are advised that you favor the bonds." If the reply of Mrs. \_\_\_\_\_ was doubtful, a representative was usually sent to her home to explain the needs and purposes of the provisions called for in the bond election ticket; but if Mrs. \_\_\_\_\_ indicated a favorable attitude towards the bonds, the girl talking urged her to vote at the election and also to encourage her friends to do so.

By means of the telephone a list of more than 5,000 citizens was secured, all of whom



THE SCORE BOARD FOR SACRAMENTO'S BOND ISSUE ELECTION,  
MAY 16, 1923

were reminded two days before the election of the fact that they were 100 per cent for the bonds. On the day of the election 125 cars and drivers and 135 poll-checkers were at the disposal of the committee. The latter were provided with individual lists of names which were attached to the poll books of the 48 separate precincts. It is estimated that more than 3,000 people were carried to the polls on election day.

Prominent citizens have pronounced the vote as the most discriminating one ever registered in the history of Sacramento city. The successful outcome of the election is largely attributed to the fact that the vote was a highly intelligent one passed by home voters and by citizens interested primarily in the future growth of California's capital city.

SUMMERFIELD McCARTNEY,  
Sacramento Chamber of Commerce.

### ***High School Students Plant Eight Thousand Trees***

ONEONTA, N. Y.—Two hundred high school students planted 8,000 trees in less than three hours on Arbor Day, on the watershed of the Oneonta Water-Works, which became city property this year. The untiring efforts of Water-Works Superintendent J. G. Hoyt, and Superintendent of Schools George J. Dann, the latter being chairman of the Chamber of Commerce



## From Pit to Job in Double-Quick Time

The gravel in the pit pictured above was made quickly available to a big concrete road job in that neighborhood by the use of the Truckrane. This sturdy Byers crane mounted on a motor truck gets out to the job fast, and loads sand and gravel in double-quick time with half-yard grabs of the bucket, the big boom making two or three round trips a minute.

Truckrane is furnished ready for mounting on any standard motor truck chassis of 5 tons capacity measuring 9 feet 6 inches or more from back of driver's seat to center of rear axle. It is economical to buy, easy to mount and operate. Write for our new Bulletin.



*Truckranes are available for immediate delivery all over the country.*

**THE BYERS MACHINE CO.**  
160 Sycamore St.                      Ravenna, Ohio

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# TruckRanE



committee in charge, made the results possible, while the boys and girls who planted the trees "pitched in" with youthful enthusiasm that excelled the committee's fondest expectations. The plantation increases the municipal forest to 325,000 trees, and the idea of reforestation was implanted in a practical way in the minds of Oneonta's youth.

EVERETT HICKS,

Secretary, Oneonta Chamber of Commerce.

### ***Sanford Secures Wide Powers in City Planning and Zoning***

SANFORD, FLA.—A bill drawn by the Sanford Chamber of Commerce, giving legislative authority to the city of Sanford to appoint a board to be known as the "City Planning Commission," with wide powers, was recently signed by the Governor of Florida. Sanford is the first city in the state which has asked for and received such legislation.

The bill was drawn along lines similar to those of the general act of the North Carolina Legislature empowering municipalities in that state to appoint city planning commissions. The new Florida law, however, is a special act applying to Sanford only. It authorized the local City Planning Commission, when appointed, to prepare zoning maps and ordinances for submission to the governing body of the city, and to submit recommendations also in such matters as parks and playgrounds, new street openings and the laying out of new real estate subdivisions. In the matter of subdivisions the jurisdiction of the Commission extends one mile beyond the corporate limits of the city.

The broad powers of the Commission are indicated by the following paragraph, which is Section 7 of the new act:

"Such City Planning Board shall, at the direction of the City Commissioners, make recommendations for the promotion of economic and industrial prosperity and enhancement of the health, comfort and convenience of the people or of such cities and towns. It shall study and, in its discretion, recommend ways and means which will tend to prevent or relieve congestion, either of population or of traffic, to control the fire hazard, to preserve the natural or historic features of the town, and to beautify the same. Such board may also prepare and issue reports on the best method of financing and assessing the cost of public improvements. It may investigate, prepare surveys of, and make recommendations on any matter which in its opinion may make

the community a better place to live in or a better place to work in. Plans may be made by such board for new streets, roads, boulevards, alleyways, viaducts, bridges, subways, parks, playgrounds, aviation fields, rail and water terminals, docks, wharves, canals, basins, tunnels, water-works, water-front improvements, public utilities, public buildings, and all other public improvements. Wherever any of the foregoing shall exist, then the City Planning Board may make recommendations as to their respective removal, relocation, widening and extension, as occasion may necessitate or require, all of which shall be subject to approval of the City Commissioners."

R. W. PEARMAN, Jr.,

Executive Secretary, Sanford Chamber of Commerce.

### ***City Planning and Zoning Adopted***

APPLETON, WIS.—The recent adoption by the City Council of a city plan and zoning ordinance for Appleton was the result of the continued efforts of the Chamber of Commerce for some time past to impress the aldermen and citizens of Appleton with the need for some definite provision for the orderly future development of the city.

The Chamber's first step was to secure Leonard S. Smith, Professor of City Planning at the University of Wisconsin, to address the Chamber of Commerce Forum on the benefits of a city plan and zoning ordinance. The Mayor, who was present at this meeting, then invited Professor Smith to speak before the City Council. This invitation was accepted, and at the meeting which followed, considerable interest was aroused. The suggestion was made, however, that before any definite steps were taken toward the preparation of a zoning ordinance, the idea be presented to the citizens of the community and their approval secured, through a series of public meetings to be addressed by Professor Smith. This suggestion was brought to the attention of the Board of Directors of the Chamber, and it was decided that that organization should undertake the arrangements for the meetings.

A number of educational meetings were held in the various ward schools, and at a big final meeting in the Vocational School, the Mayor announced that within the next few days he would appoint a City Plan Commission, as provided for in an ordinance passed by a previous administration. The Commission when appointed engaged Professor Smith to cooperate with them in the preparation of a city plan and zoning



## **“Nothing like The Best Tracklayer”**

“We have used stock, then steam and gas wheel engines, but there is nothing like the BEST TRACKLAYER,” writes a contracting concern\* of St. Louis, Missouri. “We have worked thousands of hours at very hard work.”

(\*Name on request)

Investigation among owners to see how satisfactory has been the service given by the BEST “Sixty” and “Thirty” is urged.

**C. L. BEST TRACTOR CO.**  
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New York City

# **BEST TRACTORS**

46-723

ordinance. These were completed and presented to the City Council several months ago and have since been adopted.

HUGH G. CORBETT,

Managing Secretary, Appleton Chamber of Commerce.

### **Chamber Promotes Country Club**

HENDERSON, N. C.—On April 28, a committee of the Henderson Chamber, which had for some time been gathering information on the promotion of country clubs, with 35 men of the community took action upon the plans of the committee for forming a country club.

A budget of \$20,000 for the first year's operations was determined upon, and within thirty minutes over \$6,000 was raised by those attending the meeting. Committees were then appointed on by-laws, charter, building plans, grounds, etc. A group of eight men volunteered to canvass a list of 150 prospects prepared by the Chamber's committee, and on the following day the remaining \$13,000 of the budget was raised.

A forty-acre site, beautifully situated about two miles south of the city, with a nine-hole golf course practically completed, was purchased by the club, and the members are looking forward to the formal opening of the golf links, which is planned for July 4. The country club building will probably be opened early in August.

GEORGE E. COMER,

Secretary, Henderson Chamber of Commerce.

### **Van Wert's Community Clearing-House**

VAN WERT, OHIO.—Situated on the Lincoln and Wayne Highways in Van Wert County, Ohio, is this city of 8,300 inhabitants which, until last October, had wrestled with the small-city business, social, civic and religious community problems through separate organizations with indifferent success. At that time a few of its leading citizens organized the nucleus of what is now known as the Community Clearing-House.

At the beginning of the new movement it was decided to promote one annual financial campaign and oppose any additional similar movement, since all welfare, business and other agencies were given opportunity to be represented in this one cam-

paign. The Committee on Finance set for its mark the sum of \$20,000, and raised that sum in eight hours' time. A three months' campaign of publicity and public meetings preceded the actual solicitation of funds.

The budget for the first year is as follows:

Business and Civic Promotion.....	\$8,000.00
Y. M. C. A.....	2,000.00
Y. W. C. A.....	2,000.00
City Welfare Work .....	1,500.00
Associated Charities .....	1,000.00
Boy Scouts .....	100.00
W. C. T. U.....	75.00
Girls Reserves .....	100.00
Other Worthy Causes .....	1,300.00
Emergency Fund .....	2,000.00
Shrinkage .....	2,000.00
	<b>\$20,075.00</b>

In the office of the Community Clearing-House are rural mailing lists for the use of merchants; lists of clubs and societies and their representatives; a Red Cross Department; a State Free Employment Agency; a Civic Music Department; City Welfare Headquarters; a Relief Department; a Better Business Bureau; Associated Charities; the City Humane Society; the City Health Nurse; all working together for the general betterment of the business and living conditions of the community. In addition to these are the usual active committees found in an organized chamber of commerce. Membership in the Chamber of Commerce of the United States and in the Ohio State Roads Association is maintained.

Since its organization last fall, the Clearing-House has the following achievements to its credit: extra street lighting installed in the business section of the city; a complete list of all city welfare cases compiled, and administered; incipient epidemics stamped out; traffic mushroom lights built for a financially embarrassed city; complete lists compiled of all city and county inhabitants; Fall Festivals and Merchants' Spring Exhibits made annual features; Free State Employment Agency installed; convention attracted to the city; and other public betterment ideas worked out to completion. The citizens generally are taking part in the work, striving to quicken the public sense of civic duty and to encourage the right kind of leadership, to the end that there may be transmitted to those who follow, a city, not less, but greater, better and more beautiful than was left to them.

E. I. ANTRIM.

President, Community Clearing-House of Van Wert.

**A prominent engineer writes:**  
 "Your 'Maintenance Manual' is the most constructive piece of road literature that has come to my attention in years. Congratulations."

**Repairs**

Make that develop in treated macadam surfaces must be removed quickly so that they may not increase unduly in size. Lay out base material from the hole, and if it is only a chip or crack, patch the hole with 'Tarvia B'. Cover with chips or gravel. Do not make a patch of 'Tarvia B' in the hole, because this will make a soft patch that will wear and crumble.

If the hole is deep or extensive, it should be patched as described on page 48. "How to Patch with Tarvia."

During the winter, ruts may be formed by chains on the wheels of more vehicles. A succession of similar tracks engaged with chains will wear through any surface treatment, if the vehicle keeps in the same track. Repairs must be made at the earliest moment when or where the rut is on the road and the road is dry enough to take a treatment. If the rut is shallow, it may be covered with loose material, patch, or gravel. If the rut is deep, repair them as described on page 48. "How to Patch with Tarvia."

**Maintenance**

While with gravel made a good treatment is necessary to keep the road in first class condition with Tarvia. It is also always advisable to treat every year. It is also best to treat a road, so that a road can be kept in good condition. Some of the most successful highways that are surfaced with Tarvia receive less than 1 1/2 million per year and per year. When such small amounts are applied there is no danger of a road surface being built up.

Before each treatment see that all ruts, holes and depressions are patched, when needed. A maintenance surface treatment will not put a greatly repaired road in perfect condition.

**TARVIA RESURFACING**

By treating the surface of the road with Tarvia, the surface can be made as good as new. The old surface is not removed. The old surface is covered with a new layer of Tarvia. The new layer is applied in a thin layer, and a great saving is effected. There are thousands of miles of old macadam roads, and other types that can be improved by resurfacing with Tarvia.

**TARVIA CONSTRUCTION**

1. In the case of old macadam or gravel roads, it may be necessary to grade to a depth of 2" and roll to an even surface. After this is done, it is sufficient to put a layer of Tarvia on the surface. (See page 48).
2. Spread a 2" layer of 1 1/2" clean, tough, hard stone.
3. Roll with a heavy roller to a true and even surface.
4. Apply "Tarvia X" at the rate of 1 1/2 pounds per square yard.

## A Road Maintenance Manual Every Engineer Should Have

ROAD authorities know that eternal maintenance is the price of good roads; that haphazard patching and treating of highways is more costly in the long run than a system of regular upkeep.

This manual shows how every type of road and pavement, except earth roads, can be easily repaired and maintained with Tarvia.

Whether or not you use Tarvia, this booklet will prove of great benefit to you in your work. "Road maintenance with Tarvia" is recognized by engineers and road authorities as the most complete and helpful booklet on road maintenance that has ever been published.

A copy will be gladly sent free on request to our nearest branch office. As the number of copies is limited, we suggest that you write for your copy today.

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# The Municipal Bond Situation

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

THE month of June will exceed in volume of bond sales every preceding month for the year 1923, judging by the best available data. The reason for this is the fact that there were in June many large bond offerings by states which will not be in the market again this year; in fact, some of them will not find it necessary to seek funds for many years to come. The sale by the state of Illinois of \$17,000,000 bonds, consisting of \$10,000,000 Soldiers Bonus 4½'s and \$7,000,000 Highway 4's at prices to yield 4.49 and 4.40 per cent respectively, and the subsequent successful reoffering of the bonds by the purchasers during the latter part of May, was the turning point of the dull market which has prevailed for the last few months. Because of the immediate absorption of this issue, many issues that had a doubtful prospect of attracting interest have been disposed of at good prices. The state of Iowa, which was unsuccessful in offering \$22,000,000 Soldiers Bonus 4¾ per cent bonds in May, succeeded in selling at par on June 2, 4¾ and 4½ per cent bonds divided in such a way as to bring the net interest cost of the entire loan to about 4.40 per cent. Iowa is what might be called the ideal borrower from the investors' standpoint. The indebtedness just incurred is the first in more than 30 years. There will be no necessity for any additional borrowing in the near future, so that the full faith and credit and the unlimited taxing power of the state are behind this one relatively small issue. The third state to float a large bond issue was Kansas, which sold \$25,000,000 Soldiers Bonus 4½'s to yield 4.42 per cent.

The reason for the success of municipal offerings during this month is the approach of the July 1 reinvestment period. At that

time there will be many maturing issues and extremely large interest payments which will release a vast amount of capital for tax-exempt securities. Another factor in the present demand for tax-exempt bonds is the expiration of certain tax-exemption features of Liberty bonds, Certificates of Indebtedness, and Treasury Saving Certificates on July 2, 1923. After that date investors may hold, exempt from surtaxes, only \$55,000 of the above-named Government securities, as compared with \$160,000 prior to that date.

The total sales for the month of June will probably greatly exceed \$150,000,000, which is double that of any month this year with the exception of May, when sales totaled \$88,175,189.

Other states which are seeking funds during the month of June, but which have set offering dates subsequent to the time of this writing, are New Jersey, with \$5,000,000 4¼'s; Maine, with \$800,000 4's, and California, with \$5,000,000 4¼'s.

## SOME IMPORTANT MUNICIPAL\* BOND ISSUES FLOATED DURING JUNE

Amount	Place	Maturity	Rate (%)	Net Yield (%)
\$930,000	Eric Co., N. Y. . . .	1943-52	4	3.99
700,000	Nassau Co., N. Y. . . .	1925-32	4½	4.11
1,650,000	Maryland . . . . .	1926-38	4½	4.29
22,000,000	Iowa . . . . .	1923-42	4¼ & 4½	4.40
25,000,000	Kansas . . . . .	1924-48	4½	4.42
3,790,000	Milwaukee, Wis. . . .	1924-43	4½	4.42
4,274,000	Jersey City, N. J. . .	1924-57	4¾	4.43
1,689,056	Minneapolis, Minn. . .	1924-53	4½	4.44
1,875,075	Flint, Mich. . . . .	1924-53	4½ & 4¾	4.54
2,000,000	Hennepin Co., Minn. . . . .	1928-42	4¾	4.58
975,000	Shelby Co., Tenn. . . .	1933-57	4¾	4.74
1,000,000	San Antonio, Tex. . . .	1924-62	5	4.76
1,527,000	Memphis, Tenn. . . .	1926-63	4½ & 5	4.70
750,000	Memphis, Tenn. . . .	1929-62	4½ & 5	4.78
2,730,000	Miami, Fla. . . . .	1929-53	5	5.23
2,750,000	Calcasieu Par., La. . .	1923-52	5½	5.44

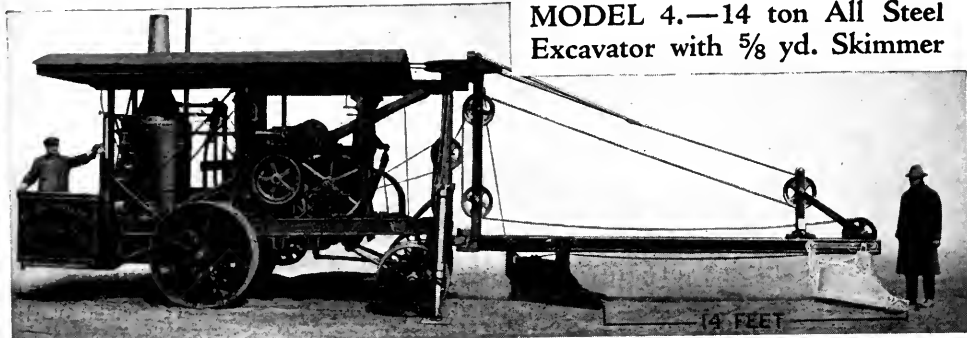
\* The term "municipal" as used in the bond market covers bond issues made by states and their subdivisions in distinction from those made by the Federal Government.

## Semi-Annual Index to THE AMERICAN CITY

The Index to Volume XXVIII (January-June, 1923) is now ready and may be obtained by subscribers upon application to the publication office, 443 Fourth Avenue, New York, N. Y.

# STEAM **KEYSTONE** SHOVELS

TRADE MARK  
REGISTERED U. S. PATENT OFFICE



MODEL 4.—14 ton All Steel  
Excavator with  $\frac{5}{8}$  yd. Skimmer

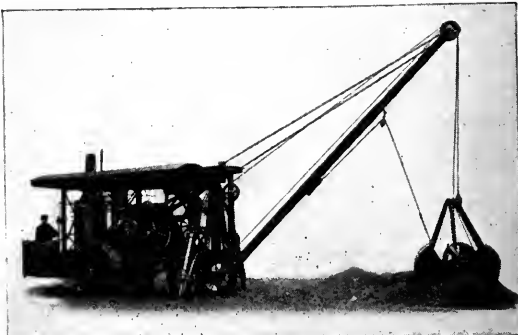
The KEYSTONE is a highly versatile traction steam shovel with all the efficiency of specialized design, usable with three different interchangeable scoops—*Skimmer, Ditcher and Clam Shell*—for Road Grading, Trenching, Back-Filling, Cellar Digging, Pit Mining, Loading, Unloading and Handling Materials. Can be equipped with electric motor drive for use in buildings. Saves first cost, moving cost and upkeep and is readily sold or rented for any sort of excavation job. A reliable road shovel of remarkable adaptability to other uses.

The heavy Keystone Skimmer Bucket,  $\frac{5}{8}$  yd. capacity, has a horizontal crowd of 14 feet and fills itself at one shot in a six inch cut. It leaves a smooth surface, finished to grade and thus dispenses with costly hand-trimming. Shallow digging in hard material—old macadam, paving blocks, concrete and asphalt—is keystone work.

Made in two sizes: Model 3, 10 ton and Model 4, 14 ton. The good Keystone Digging Ideas in our catalogs and advertising sheets have made money for 1500 Contractors in the United States. Ask for them.



DITCHER



Model 4, with Boom extension and  $\frac{1}{2}$  yd. Clam Shell Bucket

Keystone stands on the solid. No cribbing needed, no danger from cave-in, of machine sliding into excavation. Any width or depth to 20 feet. There is 4 feet of water in this 12 foot ditch. The Keystone is adapted for hard going among roots, boulders, etc., and cleaning out blasted rock.

## Keystone Driller Company, Beaver Falls, Pa.

170 Broadway, New York

Monadnock Block, Chicago

Joplin, Mo.

# The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

## Can a City by Ordinance Shift Upon Abutting Owner Its Liability to Persons Injured Owing to Defective Condition of Sidewalks?

The highway engineer of an Ohio city raises an interesting question when he writes for information as to whether a city validly may impose by ordinance liability on an abutting property owner for injury to pedestrians, due to such owner's failure to repair the sidewalk in front of his premises, after he has been notified of the dangerous condition of the walk. Our correspondent adds:

"The Ohio courts have held that the city is liable for all accidents to pedestrians on account of the non-removal of snow and ice by the property owner, regardless of whether or not the city has general ordinances covering this matter. I know of no decisions, however, covering accidents on account of walks out of repair."

It seems that the rule of a city's liability is the same in cases arising from sidewalks out of repair as in the snow and ice cases. It also seems to be the rule in Ohio, as it doubtless is in many other states, that cities cannot avoid responsibility for negligently failing to keep sidewalks in a proper state of repair. And we doubt very much that the responsibility of an abutter could be increased by such an ordinance as is suggested.

The decision handed down by the Ohio Supreme Court in the case of Wilhelm vs. City of Defiance, 58 Ohio State Reports, 56, appears to still stand as good law in Ohio, and it has been followed by courts of other jurisdictions.

In that case the city had sued Wilhelm in a lower court, claiming that, because of the defective manner in which he had constructed a sidewalk ordered by the city, a pedestrian had been injured and recovered damages against the municipality. It was sought to require Wilhelm to reimburse the city because his negligence was the direct

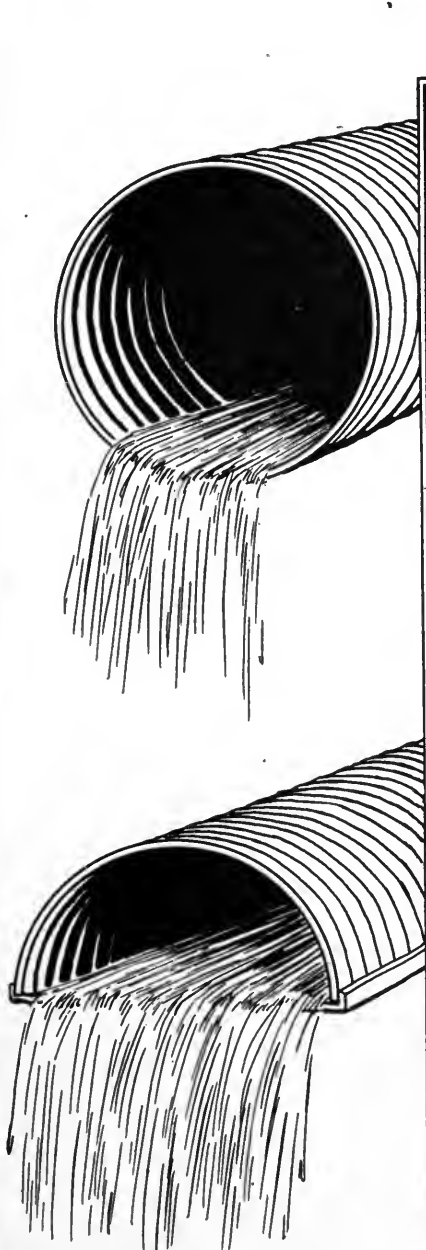
cause of the accident and because he had been notified of the pendency of the pedestrian's action and that indemnity would be demanded should she recover.

It was decided that the city was not entitled to reimbursement in this class of cases. But it is estimated that reimbursement may be enforced in those less frequently arising cases where the defect has been caused by the abutter's use of sidewalk or street space for his own personal ends, as where he constructs a vault under the sidewalk and maintains a defective covering, provided that the abutter was notified of the pendency of the injured person's suit against the city. Several decisions, including Illinois and New York cases, are cited in support of this proposition. But the Court draws a distinction to be applied where the case is a common one arising on the abutter's mere neglect to repair an ordinary sidewalk. Citing an Ohio statute, which is probably still in force in substance if not literally and which is similar to provisions in the statutes of other states, requiring cities to keep sidewalks in repair, the Supreme Court says:

"Cognate provisions of the statute authorize the municipality to require, in the mode specified, the abutting owner to construct or repair the walk in front of his premises. The effect of his failure to comply with the requirement is also defined by the statute; that upon his failure the municipality may construct or repair the walk and assess the cost thereof upon his property. But the right of the city to be indemnified in this manner is expressly limited to one-fourth of the amount at which the property is valued for the purpose of taxation. *The consequence thus indicated by the statute is exclusive.* In considering the effect of similar statutory provisions in *The City of Keokuk vs. the Independent District of Keokuk*, 53 Iowa, 352, it was said: 'The city has sole authority over its streets, is charged with their improvement and repair, and vested with the power to tax for that purpose. Where the lot owner is required by the city to construct or repair a sidewalk, it is simply a method of



# ENDURANCE



**E**NDURANCE is the ability to bear and continue in spite of destructive forces. In this respect Newport Culverts are pre-eminent in the culvert field. Made of GENUINE, OPEN-HEARTH IRON (99.875 % pure copper alloy), these culverts are the most rust-resisting on the market.

In strength, they have never been found wanting, for under the heaviest fills, with the greatest loads, they have carried the burden without deformation. They are guaranteed to last longer under identical conditions than any other corrugated metal culvert pipe.

Newport Culverts are made in full-round and half-round types, as illustrated, so that city, county and state officials may have a culvert adaptable to every condition.

Newport Culverts endure the ravages of time and rough usage for decades. Let us explain further why we thoroughly believe there is no better culvert made. Send us your name and address.

---

**Newport Culvert Company, Inc.**

542 West Tenth Street  
Newport, Ky.

exercising such power of taxation by which he is made the agent of the city to expend the amount of the tax, and the responsibility for the performance of the work remains where the authority to control it is found.'

"In well-considered cases it has been held that the liability which the statute imposes upon the abutting owner is exclusive and not reconcilable with an unlimited liability for injuries occasioned by the defective condition of streets and sidewalks which are constructed and maintained under the authority of the municipality, where the condition results from negligence merely."

After citing decisions of the highest courts of New York, Connecticut, Maryland and Missouri, in support of the rule just quoted, the Ohio Court added:

"The policy of the statute, as indicated by its provisions according to the doctrine of the cases cited and numerous cases which they review, seems to require the conclusion that when a municipality accepts a sidewalk constructed by the owner of abutting property pursuant to its notice, as a compliance therewith, all liability for mere negligence in construction and maintenance must rest and remain upon it."

In the light of this decision, we fail to see how a city validly may shift such liability to the owner by ordinance.

**Proposed Municipal Incorporation May Be Annulled Where Main Object of Incorporation Was to Reach Taxable Property, Rather Than Lands and People Properly Subject to Municipal Government**

The Minnesota Supreme Court lately decided that incorporation of defendant city was invalid, because it embraced territory not so conditioned as properly to be subjected to municipal government. (*State vs. City of Nashwauk*, 189 Northwestern Reporter, 592.) It appeared that the territory sought to be incorporated comprised nine and one-half sections of land. Four sections embraced a village having a population of 2,500, with several paved streets, other graded streets, cement sidewalks, electric lights, a public water and heating system, churches, banks, business houses, etc. Other parts of the territory embrace mines, and the Court found that in the vicinity "wild animals, deer, coyote, brush wolves and mink still maintain their native habitat." It was conceded that inclusion of mining properties was made with a view to rich tax revenues, and it was found by the Court that there was no such unity of interest of the people of the various sec-

tions sought to be included as would support a valid municipal corporation, in the face of objection of some of them. In the course of the opinion, the Supreme Court said:

"There is no claim that mine owners may rightfully object to a municipality including their land upon the ground that their taxes will be increased. Mines require workers and may make necessary municipal conveniences. The presence of mines may indeed suggest the propriety of their inclusion in the village where the workers live so that the local community may be properly policed, subjected to proper sanitation, and have the conveniences of life which only a local government can give. In *Sartell vs. County of Benton*, 149 Minn. 233, 183 N. W. 148, we suggested the justice, without formulating a legal proposition, of an industry which brings in a community of workers, dependent upon it and doing its work, contributing to the support of the schools made necessary. Granting all this, the case of the respondents is not helped. The near-by tax values, rather than appropriate municipal government, suggest the reason of a city of so inclusive limits."

**Properly Conducted Operations of City in Collecting and Disposing of Garbage Does Not Constitute a Nuisance**

Affirming an order dismissing injunction proceedings brought to prevent officials of the city of Bessemer from establishing a garbage disposal plant, the Supreme Court of Alabama said in the case of *Kirk vs. McTyeire*, 95 Southern Reporter, 361:

"A suitably located and properly operated plant for burning garbage is not a nuisance. 29 Cyc. p. 1174. The authoritative assumption by the municipality of the exclusive function of collecting in wagons and carrying, in properly inclosed receptacles, through the city's streets to a common point, the garbage, refuse, or débris accumulating in the city, is the exercise of the police power, and is hence not the creation of a public or private nuisance of which property owners on thoroughfares so used to transport such matter can successfully complain."

**City Is Not Liable for Negligence of Street Sprinkler's Driver**

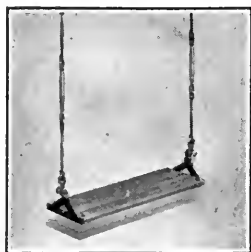
Municipal street sprinkling is a governmental function in the maintenance of public health, and the city is not liable for injuries caused by the driver of a sprinkler to a traveler in the streets through negligent driving, holds the Georgia Court of Appeals in the case of *McGrady vs. City of Rome*, 115 Southeastern Reporter, 283.



## Rubber Grips Make **MEDART** Swings Safer

In all Medart Playground Apparatus there are outstanding features resulting from many years of experience. The rubber-covered hand grip for swings is an example—it assures greatest safety and comfort. Children will use a short-link chain swing that pinches their hands, but not as enthusiastically or as often as they will use the Medart swing with its long links and vulcanized rubber grip.

The links are  $9\frac{3}{4}$  inches long, drop forged and made heavier in the center. Special seat brackets prevent tilting. Roller bearing fittings are unconditionally guaranteed for three years—many have given constant service for fifteen years. Rollers and shaft are of hardened steel.



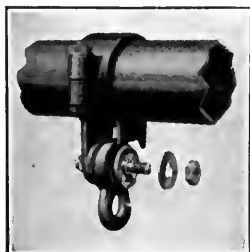
Supporting steel links are tested to 2500 pound tensile strength. Note bracket supports which prevent tilting.

## **MEDART** PLAYGROUND EQUIPMENT

The three principal factors in playground equipment are—SAFETY, SERVICE and DURABILITY. The thought devoted to the perfection of these three factors is exemplified in every piece of Medart Playground Apparatus. As a consequence, Medart Equipment has been, for fifty years, the first choice of civic officials, school boards, physical instructors and others entrusted with the purchase of playground apparatus. The price is much lower than you would expect for apparatus of such outstanding merit.

### Send for Catalog "M-6"

It illustrates the full line of Medart Playground Equipment. Also contains information on playground planning based on our long experience in this work. This catalogue sent free on request.



This roller bearing fitting, at point of greatest strain, is acknowledged the safest and most serviceable ever devised.

## FRED MEDART MFG. CO.

Potomac and DeKalb Streets,

St. Louis, Mo.

Also Manufacturers of Steel Lockers.

Catalog on Request.

# Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York, 233 Broadway, New York,  
and from other sources

## Recent Zoning Enabling Acts and Ordinances

IN January, 1923, the Department of Commerce at Washington issued a statement entitled "Fifteen Million People Live in Zoned Cities." Annexed to that statement was a list of the state enabling acts and local ordinances in force at that date. For the benefit of our readers, an additional list, containing the acts and ordinances passed since the statement of the Department of Commerce appeared, and a few acts and ordinances of earlier date, not included in that list, is given below:

Palo Alto, Calif.—Ordinance No. 234, adopted April 24, 1922.

Sacramento, Calif.—Ordinance No. 117, 4th Series, adopted April 19, 1923.

Santa Monica, Calif.—Ordinance No. 211, adopted Jan. 27, 1922, and ordinance No. 220, adopted June 21, 1922.

South Pasadena, Calif.—Ordinance No. 580, adopted Nov. 13, 1922, repealed Jan. 27, 1923.

Denver, Colo.—Amendment to charter, adopted at election on May 15, 1923.

Delaware.—Enabling act, March, 1923.

Aurora, Ill.—Ordinance, May, 1923.

Chicago, Ill.—Ordinance, April 5, 1923.

Cicero, Ill.—Ordinance, May 7, 1923.

Downers Grove, Ill.—Ordinance, Apr. 16, 1923.

Glen Ellyn, Ill.—Ordinance, Apr. 17, 1923.

Rockford, Ill.—Ordinance, Apr. 30, 1923.

Richmond, Ind.—Ordinance, Apr. 16, 1923.

Iowa.—Enabling act, April 24, 1923.

Baltimore, Md.—Ordinance, May 19, 1923.

Springfield, Mass.—Ordinance, Dec. 27, 1922.

West Springfield, Mass.—Ordinance, May 2, 1923.

Grand Haven, Mich.—Ordinance, Apr. 6, 1923.

Grand Rapids, Mich.—Ordinance, Feb. 22, 1923.

Kansas City, Mo., Ordinance, June 4, 1923.

Boonton, N. J.—Ordinance, Dec. 18, 1922.

Glenrock, N. J.—Ordinance, Feb. 26, 1923.

Hackensack, N. J.—Ordinance, Mar. 20, 1922.

Highland Park, N. J.—Ordinance, Feb. 26, 1923.

Hightstown, N. J.—Ordinance, Nov. 8, 1922.

Plainfield, N. J.—Ordinance, Apr. 2, 1923.

Ridgewood, N. J.—Ordinance, Mar. 20, 1923.

Summit, N. J.—Ordinance, March 6, 1923.

Weehawken, N. J.—Ordinance, July 7, 1923.

Farmingdale, N.Y.—Ordinance, Oct. 31, 1922.

Floral Park, N.Y.—Ordinance, Apr. 14, 1922.

Garden City, N.Y.—Ordinance, May 25, 1922.

Great Neck, N. Y.—Ordinance, Feb. 3, 1922.

Hempstead, N. Y.—Ordinance, June 12, 1922.

Newburgh, N. Y.—Ordinance, May 2, 1923.

Ossining, N. Y.—Ordinance, Nov. 1, 1921.

New York.—Laws 1922, Chapter 322, applies to towns.

North Carolina.—Enabling act adopted 1923.

North Dakota.—Enabling act, Feb. 23, 1923.

West Park, Ohio.—Ordinance, Dec. 1, 1922.

Pennsylvania.—Enabling act for cities of third class, approved April 5, 1923.

Newport, R. I.—Ordinance, March 20, 1922.

Providence, R. I.—Zoning, adopted June 4, 1923.

Appleton, Wis.—Ordinance, March 7, 1923.

Madison, Wis.—Ordinance, Nov. 20, 1922.

Wyoming.—Enabling act adopted 1923.

Acts have also been passed in Connecticut empowering several cities to pass zoning ordinances, and in Massachusetts raising the height limit in Boston from 125 to 155 feet. The details of these measures will be discussed in our next issue.

*A correction.*—In my notes of last month I stated that the New Jersey law did not provide for a Board of Appeals. I should have said that there was no adequate provision in the New Jersey law on the subject. The statute with regard to Boards of Appeal is 1921, Chapter 82. There would seem to be no sufficient provision defining and granting the requisite powers to such a board; and there is no provision for a review by certiorari. Edward M. Bassett would therefore seem to be justified in the statement, made in his address on zoning at the City Planning Conference in Baltimore, referred to in last month's notes, that in New Jersey "largely because of the defective provisions for Boards of Appeal or Adjustment and the review of their decisions, there have been many adverse decisions against zoning. Like many other states, New Jersey should pass a new enabling act applying to all its municipalities, following in general the provisions of the standard enabling act."

# 17%

## of all traffic accidents

*can be eliminated by  
better street lighting*

**T**HAT is the fact proved  
by a comprehensive survey  
in 32 cities.

Also consider this: In the average American city street lighting can be improved 35% without using more current, simply by directing the light more efficiently with Holophane Refractors.

May we confer with you about  
the possibilities of improving  
*your* street lighting?

Harp Type Unit  
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# Hints, Helps and Happenings

## Growth of Community Chests and Welfare Federations

A COMPILATION of financial campaign results during the year ended April 30, 1923, in 125 cities having community chests or welfare federations, has been made by the National Information Bureau, of New York, which is acting as Secretary for the American Association for Community Organization. The sum raised by this method of federated financing during the twelve months' period, to take care of the needs of some 2,500 separate philanthropic agencies, totals over \$36,000,000, representing \$1.71 per capita for the over 21,000,000 inhabitants of the 128 cities.

Of the cities having community chests or welfare federations, 12 have over 400,000 population, 20 between 150,000 and 400,000, 43 between 50,000 and 150,000, and 50 have less than 50,000 population. The records of the National Information Bureau show several other cities having community chests in process of organization.

## County Health Officers Becoming More Numerous

A MARKED increase in the number of whole-time county health officers, in counties with populations wholly or in large part rural, is shown by data recently compiled by the Rural Sanitation Office of the United States Public Health Service, the number of such officers having grown from 1 in 1911 to 231 in 1922. Of these, 122 were added during the period of 1920 to 1922. This gain in the last three years was made possible largely through increased investment by state and county governments and private agencies, as the annual appropriation of the Federal Government for co-operation in rural sanitation has remained unchanged since the fiscal year 1920.

The figures above quoted show that an encouraging degree of progress has been made, but with approximately 2,850 counties wholly or to a large extent rural in the United States, it is evident that hardly more than a fair beginning has been made in this vitally important field. As indicated by the table reproduced below, but 11.58 per cent of the rural population in this country, at the beginning of this year, was

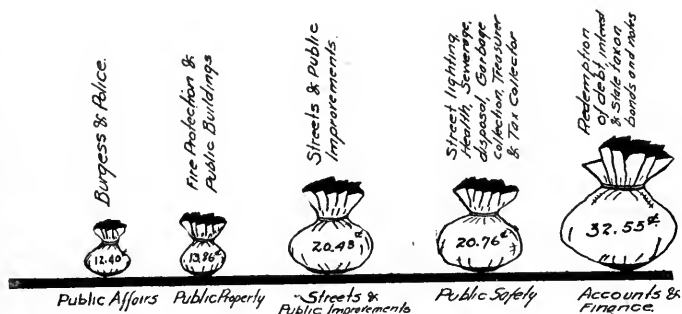
protected with health service approaching adequacy.

## A Study of 5,000 Camps

A STUDY of summer camps in the United States was begun June 1 by the Playground and Recreation Association of America under the supervision of an advisory committee appointed by Joseph Lee, President of the Association. The committee includes: Dr. J. H. McCurdy, chairman; Dr. John H. Finley, Miss Evelyn Dewey, Nelson Lewis, Dr. John Hartwell, Gaylord S. White, General Merritte W. Ireland, Caspar Whitney, Dr. Myron T. Scudder, Miss Helen Davis, William A. Welch, and Mrs. Louis Guérineau Myers.

The study, which is financed by the Laura Spelman Rockefeller Memorial, is under the immediate direction of L. H. Weir, an expert on camps and municipal recreation, and will include the preparation of a practical summer camp handbook. The information assembled will be evaluated with a view to helping existing camps and to pointing out to future camps the highest and most practical standards of business, health and social administration. Subjects which will be given special attention are location and construction of camps, sanitary and medical facilities, diet, recreative activities and nature study education.

There are approximately 5,000 summer camps in the United States, attended by several hundred thousand boys, girls and adults annually, according to Mr. Weir. Many camps are conducted by recreational agencies, business men's clubs, settlements and churches; but there are private camps to the number of 330. The last few years have seen a vigorous growth in the



*As the Pennies of your Tax Dollar  
Are Divided.*

A GRAPHIC METHOD OF DIVIDING THE TAX DOLLAR

From the annual report of the Borough Manager of Carlisle, Pa., for the year ended January 1, 1923



# HOLLOWSPUN

## LIGHTING STANDARDS

“OUR concrete poles have been a revelation to some, as it was considered impossible to subject a substance, such as concrete, to an impulsive force without experiencing disastrous results.”

This is the testimony of the chief engineer of the Northeast Oklahoma Railroad, regarding the installation of Massey Hollowspun trolley poles in Miami, Okla., pictured above.

The pleasing appearance of these poles was the deciding factor in their selection as compared with other types which might have shown sufficient strength.

The strength of the Hollowspun design is often the deciding factor in choosing lighting standards, particularly when conditions make it desirable to combine the function of lighting standard and trolley pole in one unit.

More complete information regarding this installation is available on request.

**MASSEY CONCRETE PRODUCTS CORPORATION**  
Peoples Gas Building Chicago





municipal camp idea, and there are more than 125 vacation camps operated by cities. The automobile has been responsible for the 2,000 tourist camps now said to be in existence.

## How to Check Negro Migration from the South

**T**HE *New York Times*, in its issue of May 29, calls attention to editorials appearing in various Southern newspapers which show a growing recognition of the effect of municipal and civic conditions on negro migration. The editor of *The Enquirer-Sun* of Columbus, Ga., is quoted as saying of the negro:

"He does not receive justice in the same measure that the white man does, and he is not given adequate protection. Too scant attention is paid to his physical needs—those who rent him homes think that any sort of shack is good enough for the negro; the sections he occupies in cities are practically always unsanitary, the streets usually unpaved, and no incentive given him to emulate the standards set by the white man. And the question of schools for the negro fails to receive 'he proper attention.'"

Says *The New Times* in comment:

"The South wants the negro and, given equality of treatment, the negro prefers the South. When the white men in the South begin to appreciate the part that they have played in furthering the exodus, it is likely that they will be able partly to check it. To attempt to stop it by legislation, however, or by terrorization, or by depriving the negroes of the opportunities of learning where their labor is in demand, is to fail to strike at the fundamental causes."

## 177,933 Traffic Cases in One Court in Seven Years

**I**N commenting on the seventh anniversary of the opening of New York City's Traffic Court, on June 14, Magistrate Frederick B. House said that the Court had collected in fines \$2,390,626 and had heard 177,933 cases; 14,593 persons unable to pay fines had served jail sentences. There have been 4,107 straight

jail sentences imposed, 168 licenses have been revoked, and 103 suspended since this power was first granted to city magistrates in 1921.

The Traffic Court opened with Magistrate House only on the bench. Since that time the Court's work has increased so greatly that two magistrates officiate regularly, and there have been five parts in session at times.

The following is a comparison of the work of the Court in 1916 and 1922:

1916—7,365 cases, \$89,034 in fines, 1,068 jail sentences in default of fines, and 284 prison sentences.

1922—50,137 cases, \$414,207 fines, 3,235 default sentences, 503 straight sentences, 98 licenses revoked and 30 suspended.

## Americanization and Community Organization

"The Commission found that Americanization was not flag raising and 'patriotic' howling; that it was not suppression of speech and honest opinion; that it was more than teaching English to foreigners. Americanization, it found, is the encouragement to decent living and making possible the attainment of decent standards. It involves the development of national ideals and standards, and the schooling of all residents, foreign-born as well as native-born, in those ideals and standards.

"The best medium for this development of national ideals and standards is, of course, the community. It is in his life as a member of the community that every man, native-born or foreign-born, becomes truly Americanized and makes his best contribution to his nation. Therefore the Commission is definitely interested in the development of all rational schemes of community organization."

—Paragraphs from the 1923 Report of the California Commission of Immigration and Housing.

## A Health Shelf in a Public Library

**A** DEPARTURE in the organization of a public library is reported from Mansfield, Ohio, in the installation of a reference shelf of health material for teachers and children. On this shelf are found the pamphlets of the leading health organizations as well as text-books on the subject of child health.

The American Child Health Association's literature, which presents the doctrines of good health in entertaining style, so that the tiniest school child's attention is held by its teachings, finds a conspicuous place on the shelf, it is said, and the innovation has awakened a keen interest among the children.

Mansfield is the scene of a child health demonstration which is being conducted by the Association, with the cooperation of the city authorities. The demonstration extends over a period of years, and it is hoped to prove by it the necessity for similar organizations throughout the United States.

The towns of Shelbyville and Belleville, Ohio, have followed the lead set by Mansfield, and are installing similar shelves of health material in their libraries.

Every child delinquent in body, education, or character is a charge upon the community.—HERBERT HOOVER.



**"A Standard for  
Every Street"**

The trend of the times is to harmonize the street lighting with the surroundings.

This beautiful Flemish Design equipped with General Electric Novalux has been developed in three different light centers to meet your requirements.

*New bulletin ready.*

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230 So. Clark Street,  
Chicago, Ill.

## Motion Pictures and High School Students

A QUESTIONNAIRE answered by 17,000 boys and 20,000 girls in 76 cities is the basis of a study of the reactions of high-school pupils to motion pictures recently completed by Clarence A. Perry of the Russell Sage Foundation.

The boys preferred: (1) western and frontier stories, (2) comedies, (3) detective stories, (4) love stories. The girls preferred: (1) love stories, (2) comedies, (3) society-life stories, (4) western and frontier stories. The criticisms volunteered by the students as to kinds of pictures which they especially dislike, are interesting:

Type of Criticisms	Boys Per Cent	Girls Per Cent
Slapstick (or vulgar).....	23.8	34.5
Not true to life.....	20.6	12.0
Mushy (over-sentimental) ....	18.2	10.6
Bad artistically.....	18.0	8.8
Immoral (sex).....	10.5	11.2
Murder and shooting.....	8.1	21.6
Brutality.....	.8	1.3

The returns showed that high school boys attend the movies on an average 1.23 times a week, while the girls go 1.05 times.

## To Develop the Geological Features in City Parks

AT the recent Boston meeting of the American Association for the Advancement of Science, a special committee was appointed on the "development of the geological features of city parks." In each of a number of the larger cities a geologist has been selected and asked to act as a sort of local chairman for organizing the movement. A letter from the committee to persons desiring to cooperate contains the following suggestions:

"To start this movement it would be well for a meeting to be called of geologists in your city, and also of such persons as you think would be interested and helpful in the project. At this meeting, or as a result of it:

"Consider what geological structures or features might be made visible by excavations or otherwise in your park at a moderate cost.

"Select one or two such structures as of first interest, to be developed as a beginning; others to be developed in later years.

"Prepare a definite plan of work, with plans drawn to scale and estimate of cost involved. The aid of the city engineer might be had here.

"Consider what steps should be taken in order to place the project in the best possible light before the city authorities; and when these steps are well arranged, follow them out.

"Consult with the school department, to learn in what form an explanatory leaflet concerning the developed structure could be printed and distributed to the school children.

"Secure the interest of local newspapers and keep them informed, as soon as publicity is desirable.

"When the development of the selected structure or structures is completed, hold a public meeting on the ground for a formal 'opening.' Make a handsome show of it."

## How Kansas City's Department of Parks and Boulevards Is Financed

UNDER the city charter of Kansas City, Mo., the Department of Parks and Boulevards derives its revenues from (1) a special tax levy of not to exceed 2½ mills per dollar of assessed valuation on all land in the eight park districts, (2) an assessment of 10 cents a front foot on property fronting on boulevards, (3) collections of vehicle licenses, (4) miscellaneous park collections, and (5) appropriations from the general fund.

The revenues of the Department increased from \$697,484 in 1921 to \$1,009,088 in 1922, an increase of \$325,674, or 47 per cent, as shown by the following table:

	RECEIPTS		
	1921	1922	Increase
Special 2½-mill levy..	\$282,745	\$288,416	\$ 5,671
Boulevard frontage tax	32,606	31,664	942*
Vehicle licenses.....	128,940	181,617	52,677
Other collections.....	124,850	140,644	15,793
Total park funds....	569,141	642,340	73,199
From general fund....	128,837	381,312	252,475
Total receipts.....	697,978	1,023,652	325,674

	DISBURSEMENTS		
	1921	1922	Increase
Administration.....	\$ 38,674	\$ 47,299	\$ 8,625
Maintenance.....	527,413	599,892	72,479
Improvement.....	61,547	270,361	208,814
New equipment.....	9,273	27,130	17,857
Other disbursements..	60,577	64,406	3,829

Total disbursements. 697,484 1,009,088 311,604  
\* Decrease

## Blue and Gray Unite to Celebrate Memorial Day

WHAT may come to be known as the Attleboro-Petersburg plan of celebrating Memorial Day was inaugurated with great success on May 30.

A reader of the *Attleboro Daily Sun* had suggested in January the plan of instilling new life into Memorial Day by bringing a Confederate to march with the G. A. R. The *Sun* fathered the idea, got Mayor George A. Sweeney interested, had the G. A. R. Post endorse it, and then by research determined that Petersburg, Va., of crater and siege fame, was the one spot that most of the 77 Massachusetts regiments in the Civil War were at or near.

The Mayor and a *Sun* reporter journeyed to Petersburg in March and secured, as speaker for May 30, Captain Carter R. Bishop, an authority on the Battle of the Crater and not only young, despite his 74 years, but eloquent. His visit to Attleboro was preceded by 60 daily articles in the *Sun* on war topics, by the reproduction of old pictures and forgotten war verse, by the exchange of 6,000 letters between the pupils of Attleboro and those of Petersburg, and by wide-spread local publicity.

# ***Paid Zanesville \$570 Net in 16 Days***

Here's Officer Roy Hutcheson of Zanesville, Ohio, on his 1923 Harley-Davidson. He made arrests which netted \$570 in fines the first 16 days this motorcycle was in service.

But Zanesville officials will tell you the fines were incidental. They think more of the **Protection**—the keep-crooks-away effect—the Harley-Davidson affords. And there are over 1100 other Harley-Davidson-equipped police departments that feel the same way about it. Motorized law-breakers, drunken drivers, reckless speeders—they're more afraid of one Motorcycle Officer than a dozen unmounted police.

*Swift, dependable, durable and economical* (two cents a mile—"gas," oil, tires and all) these are the qualities that have made the Harley-Davidson "America's Police Motorcycle." If your city or town isn't motorcycle-protected, write for special illustrated literature today. No obligation to you.

**HARLEY-DAVIDSON MOTOR CO.**  
MILWAUKEE, WISCONSIN



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## **Harley-Davidson** **The Motorcycle**

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Baseball, golf, track meets and horse racing were all banned in Attleboro May 30. The city was decorated as never before and a throng witnessed a parade with many patriotic features. A North Attleboro reception, a tour of the schools, a tree planting, a radio broadcasting, a unique campfire and a state armory event attended by a throng and with Captain Bishop and Congressman J. J. Rogers of Lowell as speakers, were on the program. The G. A. R. made Captain Bishop an honorary member and his three-day visit was one of the biggest events in the city's history.

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## For Greater Safety in Public Buildings

**C**ITING as a deplorable example the Cleveland, S. C., schoolhouse fire disaster, in which 73 persons lost their lives, the National Safety Council, by resolution of its Executive Committee on May 20, has urged that public officials and civic organizations in every state, city and town take aggressive action without delay to cause all public buildings to be inspected and brought into conformity with existing standard safety code requirements as to construction, fire protection and exits. Further, the fifty local safety councils and organizations of the National Safety Council in as many cities have been requested to bring about a thorough investigation of conditions in such institutions in their respective territories and to secure all changes necessary for the adequate protection of human life.

## On the Calendar of Conventions

JULY 19-21.—HEBER CITY, UTAH.  
*State Municipal League of Utah. Annual convention.* Secretary, R. N. Young, City Treasurer, Salt Lake City, Utah.

JULY 27-28.—ASHEVILLE, N. C.  
*North Carolina Commercial Secretaries Association. Annual meeting.* Secretary, J. Vear Mann, Southern Pines, N. C.

JULY 29-AUGUST 4.—PALO ALTO, CALIF.  
*Western Summer School of Community Leadership.* Director, Professor Edwin A. Cottrell, Palo Alto, Calif.

JULY 31-AUGUST 2.—KINGSTON, ONT.  
*Dominion Association of Fire Chiefs. Annual convention.* Secretary, Chief James Armstrong, Fire Department, Kingston, Ont.

AUGUST 3-10.—GOTHENBURG, SWEDEN.  
*International Town Planning Conference.* Address H. Chapman, Organizing Secretary, International Garden Cities and Town Planning Federation, 3, Gray's Inn Place, London, W. C. 1, England. The International Cities and Town Planning Exhibition will be held in Gothenburg, July 27-August 12.

AUGUST 7-10.—WALLACE, IDAHO.  
*Pacific Coast Association of Fire Chiefs. Annual convention.* Secretary, Jay W. Stevens, 205 Merchants Exchange Building, San Francisco, Calif.

AUGUST 14-16.—OTTUMWA, IOWA.  
*League of Iowa Municipalities. Annual convention.* Secretary, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 19-SEPTEMBER 1.—EVANSTON, ILL.  
*National School for Commercial Secretaries.* Address: Board of Managers, National School for Commercial Secretaries, 10 South LaSalle Street, Chicago, Ill.

AUGUST 20-23.—HARRISBURG, PA.  
*Association of American Cemetery Superintendents. Annual convention.* Secretary, W. B. Jones, Highwood Cemetery, Pittsburgh, Pa.

AUGUST 30-SEPTEMBER 1.—SHAWINIGAN FALLS, QUE.  
*Union of Canadian Municipalities. Annual convention.* Secretary-Treasurer, A. D. Shibley, 10 St. John Street, Montreal, Que.

SEPTEMBER 10-14.—CORONADO, CALIF.  
*League of California Municipalities. Annual convention.* Executive Secretary, William J. Locke, Pacific Building, San Francisco, Calif.

SEPTEMBER 10-15.—KANSAS CITY, MO.  
*American Institute of Park Executives. Annual convention.* Secretary-Treasurer, Will O. Doolittle, Minot, N. Dak.

SEPTEMBER 13-19.—BOSTON, MASS.  
*American Prison Association. Annual convention.* General Secretary, E. R. Cass, 135 East 15th Street, New York, N. Y.

SEPTEMBER 18-21.—BURLINGTON, VT.  
*New England Water Works Association. Annual convention.* Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 25-28.—READING, PA.  
*International Association of Municipal Electricians. Annual convention.* Secretary, Clarence R. George, City Electrician, Houston, Tex.

OCTOBER 1-5.—BUFFALO, N. Y.  
*National Safety Council. National Safety Congress.* Executive Secretary, W. H. Cameron, 168 North Michigan Avenue, Chicago, Ill.

OCTOBER 8-11.—BOSTON, MASS.  
*American Public Health Association. Annual meeting.* Secretary, A. W. Hedrich, 370 Seventh Avenue, New York, N. Y.

OCTOBER 8-12.—SPRINGFIELD, ILL.  
*Playground and Recreation Association of America. Recreational Congress.* Secretary, H. S. Braucher, 315 Fourth Avenue, New York, N. Y.

OCTOBER 15-17.—DETROIT, MICH.  
*American Child Health Association. Annual meeting.* Secretary, Philip Van Ingen, M. D., 370 Seventh Avenue, New York, N. Y.

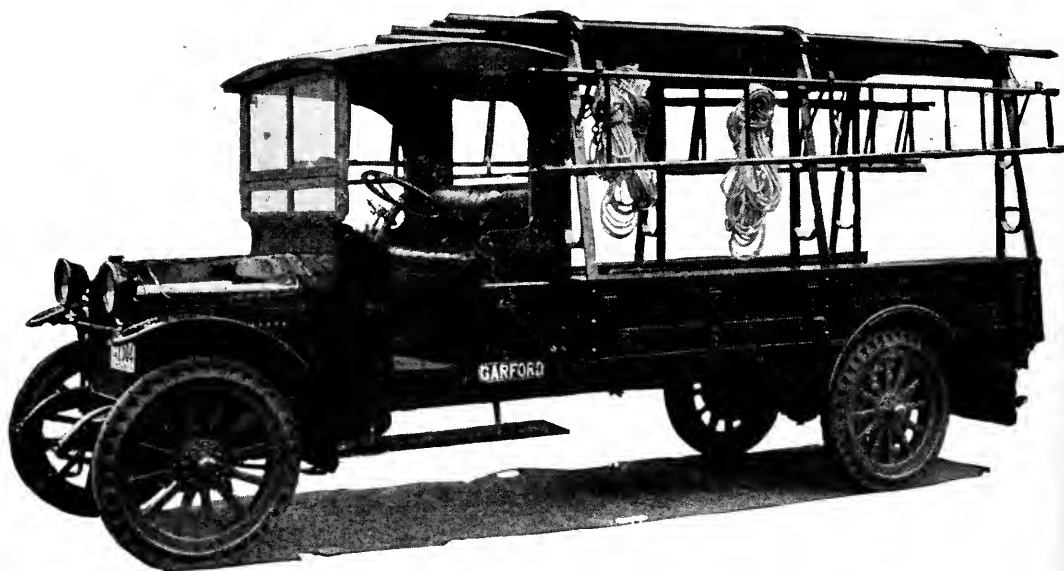
OCTOBER 23-26.—RICHMOND, VA.  
*International Association of Fire Engineers. Annual convention.* Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.

OCTOBER 29-31.—CINCINNATI, OHIO.  
*National Association of Commercial Organization Secretaries. Annual meeting.* Secretary-Treasurer, Joseph F. Leopold, 301 Crocker Building, Des Moines, Iowa.

NOVEMBER —.—ATLANTA, GA.  
*American Society for Municipal Improvements. Annual convention.* Secretary, Charles Carroll Brown, P. O. Box 234, St. Petersburg, Fla.

NOVEMBER 13-15.—WASHINGTON, D. C.  
*City Managers' Association. Annual convention.* Executive Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 13-15.—WASHINGTON, D. C.  
*National Municipal League. Annual convention.* Secretary, H. W. Dodds, 261 Broadway, New York, N. Y.



## Garford Low Cost Operation Contributes to Department Economy

In municipal service Garfords provide a sure source of saving for any department using motorized equipment. The Garford shown above is used by the Division of Electricity in Ashtabula, Ohio.

The wide range of the Garford line offers the truck of the right power and capacity for any purpose. Garford Engineers are broadly experienced in designing special equipment for any particular needs.

They are prepared to work with Department Heads, and to make sound, trustworthy recommendations as to what equipment is needed and what will insure the utmost efficiency and economy. This service is free. Ask for consultations with Garford Engineers at any time.

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Manufacturers of Motor Trucks 1 to 7½ Tons

# GARFORD

## DEPENDABLE TRANSPORTATION

# Municipal and Civic Publications

Prices do not include postage unless so stated

**City Pavements.**—By F. S. Besson, Major, Corps of Engineers, U. S. A.; Assistant Engineer Commissioner, District of Columbia. First edition. McGraw-Hill Book Company, Inc., New York. 1923. XI + 421 pp. Illustrations, diagrams and tables. \$5.

A remarkably helpful book for city engineers and others interested in the design and construction of pavements. It is primarily a practical book on the handling of highway work in a modern city. The well-illustrated text is most conveniently divided into five parts, each covering an essential phase of street-paving organization or work as follows: administration and management, planning and design, concrete paving, bituminous paving and block surfaces, stone curbs and trees. This book is based on Major Besson's own working notes gathered to help him in the administration of the paving of the District of Columbia.

**The Burden of Unemployment.**—By Philip Klein. Russell Sage Foundation, New York. 1923. 260 pp. \$2.00.

An account of unemployment relief measures used in the emergency period of 1921-22 in fifteen cities: Boston, Chicago, Cleveland, Evanston, Ill., Hartford, Kansas City, Mo., Memphis, Tenn., Minneapolis, New Bedford, New York (Borough of Manhattan only), Philadelphia, Pittsburgh, St. Paul, and Sioux Falls, S. Dak. These places vary in population from 25,000 to 234 millions, and represent various types of business and industrial centers. The purpose of the book is to be of service to community agencies which must deal with acute phases of unemployment during times of industrial depression.

**Papers from the Indiana Conference on City Planning.**—"Status of City Planning in Indiana," by G. E. Lommel, Associate Professor of Topographical Engineering, Purdue University, 6 pp.; "City Planning and the Realtor," by Henry M. Dickman, Secretary, City Plan Commission, Evansville, Ind., 3 pp.; "Our Housing Problem and Its Relation to City Planning," by Professor Leonard C. Smith, University of Wisconsin, 3 pp.; "The City Topographic Survey in City Planning," by R. H. Randall, Topographic Engineer, Toledo, Ohio, 4 pp. All mimeographed. (Apply to the Engineering Extension Service, Purdue University, Lafayette, Ind.)

**Sanitation.**—Sewage treatment for isolated houses and small institutions where a municipal sewage system is not available. By B. Evan Parry, M.R.A.I.C., Supervising Architect. Publication No. 1 issued by the Department of Health, Canada. 27 pp. Many drawings. Dealing with the design and installation of chemical closets and septic tanks. (Apply to Deputy Minister, Department of Health, Ottawa, Canada.)

**Commentary upon the Comparative Bonded Debt of Thirty-Six Cities as of January 1, 1923.**—By C. E. Rightor, of the Detroit Bureau of Governmental Research. Reprinted for "National Municipal Review," May, 1923. 6 pp. 1 table. Intended to make known the facts regarding public debt, in order that greater interest and watchfulness may be manifested on the part of citizens. (Apply to the "National Municipal Review," 261 Broadway, New York, N. Y.)

**Budget Facts and Financial Statistics of the City of Minneapolis for 1923.**—Issued by the Board of Estimate and Taxation. 24 pp. Diagrams. (Apply to the Board, City Hall, Minneapolis, Minn.)

**Increase of Population in the United States 1910-1920.**—A study of changes in the population of divisions, states, counties, and rural and urban areas, and in sex, color, and nativity, at the Fourteenth Census. By William S. Rossiter. Census Monographs I. 1922. 255 pp. Tables, diagrams. Price, \$1. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Second Annual Report of Ohio Conference on Water Purification.**—Held at Columbus, Ohio, November 16, 17, 18, 1922. 152 pp. Diagrams, tables. Important information on tastes and odors, load factors of filtration plants, analysis, water softening, filtration, etc., based on experience and research. (Apply to the State Department of Health, Columbus, Ohio.)

**Motor Transportation of Merchandise and Passengers.**—By Percival White, Research Engineer. McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York. 1923. VII + 486 pp. Diagrams, tables. \$4.00.

A study of all phases of motor transportation, presented as a practical guide for automotive engineers and students of transportation and for those actively engaged in the motor transportation business. The principles of design, of use, of maintenance, of applicability, of economic service, are all discussed with great detail in relation to the various types of motor transport, with the idea that to serve the public adequately all elements of the transportation service must be coordinated.

**A Symbol of Safety.**—By Harry Chase Brawley. Doubleday, Page and Company, Garden City, N. Y. 1923. XVI + 290 pp. Many illustrations.

"An interpretative study of a notable institution organized for service—not for profit"—the Underwriters' Laboratories, established and maintained by the National Board of Fire Underwriters. This institution is engaged in the making of tests that certify to the safety standard of commodities, appliances and equipment in use by cities, towns, manufacturers, homes and individuals. The reduction of hazard, in which the insurance companies are directly interested, must result in a general public service of value to every citizen. This volume presents, in popular style and with much detail, the story of the development and daily work of the Laboratories.

**Leading Facts for New Americans.**—By Ralph Philip Boas, Head of the Department of English in the Central High School, and Director of Evening Schools and Evening Schools Extension, Springfield, Mass.; and Louise Schutz Boas. American Book Company, New York. 1923. 216 pp. Illustrated. 68 cents.

Primarily a reader for intermediate and advanced immigrant classes in English, on the unique plan of presenting information regarding American life and ideals as told to, and elicited from, immigrant patrons of a public library, by the clever librarian to whom they come for help and advice.

**Fundamentals of Construction and Maintenance of Secondary Highways.**—By Charles C. Albright, Professor of Railway Civil Engineering; In Charge of Highway Engineering, Purdue University. Bulletin No. 1, Engineering Extension Service, October, 1922. 36 pp. Illustrated. An explanation of the fundamental road problems particularly applicable to Indiana, but containing much material of value to city street commissioners, highway contractors and others interested in the subject. Free to residents of Indiana; price 25 cents to non-residents. (Apply to Engineering Extension Service, Purdue University, Lafayette, Ind.)

**Activated Sludge Studies, 1920-1922.**—Bulletin No. 18 of the Division of the Illinois State Water Survey. 1923. 150 pp. Many diagrams and tables. An historical survey of progress in the development of the activated sludge process of sewage disposal, and a presentation of the chemical and biological data collected during the year's experimentation with the low air operation of an activated sludge plant treating 75,000 gallons per day. (Apply to A. M. Buswell, Chief, Water Survey Division, Urbana, Ill.)

**Regional Zoning.**—By Robert Whitten, Cleveland. 30 pp. Published by the National Conference on City Planning. 1923. A study of the inevitable development of the great city, its evils, remedies for congestion—the industrial suburb, open development strips and methods of legally fixing and preserving them, and the essentiality of regional planning and zoning, and their procedure and administration. (Apply to Flavel Shurtleff, Secretary, National Conference on City Planning, 130 East 22d Street, New York, N. Y.)

**Automobile Green Book.**—Official Guide Book of the Automobile Legal Association, published by Scarborough Motor Guide Company, Indianapolis and Boston. Volume 1: New England States and Trunk Lines West and South; 827 pp.; large and small maps. Volume 2: New York, New Jersey, Pennsylvania, Canada and the East; 843 pp.; large and small maps. Each \$3.00.





THAMES-VICTORIA EMBANKMENT—one of the show streets of London, England—paved with Trinidad Lake Asphalt in 1906. Still in splendid condition.

## *“It melteth not in the sun”*

So wrote Sir Walter Raleigh more than three centuries ago in describing Trinidad Lake Asphalt—the nature-made, world, old, ages-seasoned bitumen—today the “Standard Street Paving Material of the World.”

Sun-baked and storm-beaten for centuries in the tropics, Trinidad Lake Asphalt doesn't melt under blazing heat—doesn't crack under arctic cold—doesn't disintegrate under soaking rains and thaws.

Attractive—resilient—noiseless—dustless—Trinidad pavements are also remarkably low in maintenance cost. Forty and more years of service—*at less than a cent per square yard per year for maintenance*—is a common record.

Let us send you some interesting data regarding this remarkable material.

### THE BARBER ASPHALT COMPANY PHILADELPHIA

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# TRINIDAD LAKE ASPHALT

**Water Resources of California.**—Three reports of the Division of Engineering and Irrigation, Department of Public Works, State of California, to the Legislature of 1923: Bulletin No. 4, "Water Resources of California," 55 pp., views, maps, tables, diagrams; Bulletin No. 5, "Flow in California Streams," being Appendix "A" to the report on "Water Resources in California," 325 pp., many tables and diagrams; Bulletin No. 6, "Irrigation Requirement of California Lands," being Appendix "B" to the same report, 196 pp., tables, diagrams. (Apply to the Division of Engineering and Irrigation, State Department of Public Works, Sacramento, Calif.)

**Maps and Diagrams Showing Present Conditions, New York and Its Environs, March, 1923.**—Prepared by the Physical Survey, Plan of New York and Its Environs. 39 quarto pp. Maps, diagrams. The plates selected for this brochure, to visualize the problem, show the population of the different portions of the area, and its relative density at different periods; the main lines of communication, with details of service; open spaces and the need of recreation facilities; and the progress of zoning. Price 25 cents. (Apply to Plan of New York and Its Environs, 130 East 22nd St., New York, N. Y.)

**Sewerage and Sewage Disposal.**—City of New York, Board of Estimate and Apportionment, Sewage Disposal Bulletin, Supplement to No. 24. May, 1923. Issued for the Twenty-fifth Anniversary of the Greater City of New York. 10 quarto pp. Map and diagram. Giving information regarding New York City's method of waste disposal, control of oil pollution, and protection of oysters. (Apply to Arthur S. Tuttle, Chief Engineer, Board of Estimate and Apportionment.)

**Public Affairs.**—Official Magazine of "Uncle Sam's Voters," Vol. I, No. 1. June, 1923. 24 quarto pp. "Recognition of the fact that enlightened voters will rule public affairs and that unenlightened voters will be misguided, is the basis of the National Federation of Uncle Sam's Voters, a new organization which has been formed to help formulate right thinking and consequently right voting." (Apply to the National Federation of Uncle Sam's Voters, Washington, D. C.)

**The University in Relation to the Planning of the City.**—By Professor P. Abercrombie, M. A., A. R. I. B. A. Paper read at the meeting of the Town Planning Institute on December 8, 1922, with the discussion thereon. 26 quarto pp. Illustrated. "An examination of what has happened in some places." (Apply to the Town Planning Institute, 4, Arundel Street, London, W. C., England.)

**Guide to Mosquito Identification for Field Workers Engaged in Malaria Control in the United States.**—In Public Health Reports for May 18, 1923. 20 pp. Many drawings. Discussing the species of mosquitoes which carry malaria in the United States, or which, while not carriers of infection, are sufficiently common in malarious regions to be known as pests. (Apply to U. S. Public Health Service, Washington, D. C.)

**Use of Geodetic Control for City Surveys.**—By Hugh C. Mitchell, Mathematician, Special Publication No. 91 of the U. S. Coast and Geodetic Survey. 1923. 80 pp. Map, views, diagrams, tables. The object of this publication is to present to municipal engineers a comprehensive report on the methods by which geodetic control, already covering a large portion of our country, can be utilized, and to suggest the use of geodetic methods to other engineers. Price, 20 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Journal of the American Association for Promoting Hygiene and Public Baths.**—Volume V. 1923. 95 pp. Illustrated. The proceedings of the 1922 meeting of the Association, held in Buffalo, N. Y. Including papers on the construction, sanitation, hygiene and regulation of public baths and swimming pools, with special reports on the recreational activities of Buffalo, Minneapolis, and Pittsburgh, and other interesting material. (Apply to Arthur Morton Crane, P. O. Box A, Nutley, N. J.)

**Progress in Health Conservation During the Past Fifty Years.**—By George Martin Kober, M. D., LL. D., Professor of Hygiene, Georgetown University Medical School, Washington, D. C. Special article in "Public Health Reports," issued weekly by the United States Public Health Service. April 6, 1923. 15 pp. An interesting summary of gains that point to still greater achievements in the future. Price, 5 cents. (Apply to the Government Printing Office, Washington, D. C.)

**Present Attitude of Courts Toward Zoning.**—By Edward M. Bassett, Counsel, Zoning Committee, New York City. 21 pp. Published by the National Conference on City Planning. 1923. A discussion of the court cases by states, thus considering the completeness of the enabling act of that state at the same time that the ordinance passed upon by the courts is considered. Only such states as have brought out recent instructive court decisions are referred to. (Apply to Flavel Shurtleff, Secretary, National Conference on City Planning, 130 East 22d Street, New York, N. Y.)

**An Index to State Tuberculosis Laws.**—Compiled by James A. Tobey, M. S., LL. B., National Health Council, Washington, D. C. In "Public Health Reports" for June 1, 1923. 10 pp. Only laws in force and on the statute books at the time of this compilation are included, those of a temporary nature, as authorization of an investigation for a specific purpose, and repealed laws, being omitted. (Apply to the United States Public Health Service, Washington, D. C.)

**Proceedings of the Ninth Annual Convention of the Canadian Good Roads Association.**—Held in Victoria, B. C., June 12-15, 1922. 133 pp. Illustrated. Numerous valuable papers on road construction in its various phases. (Apply to Geo. A. McNamce, Secretary-Treasurer of the Association, New Birks Building, Montreal, Que.)

**The Race Track Graft Which Costs the People of Michigan Millions of Dollars Every Year.**—A series of articles reprinted from "The Detroit News," Detroit, Mich. 89 pp. How the "boobies" are exploited; how the bookmaker works his game so that he never loses; how it is mathematically impossible to win; how the lives of thousands are wrecked annually by it; what the police heads, prosecutors and judges say about it. (Apply to "The Detroit News.")

**Adequate Ranking and Parking Facilities.**—By W. P. Eno, Chairman of the Board of Directors of The Eno Foundation for Highway Traffic Regulation, Inc. A paper read February 14, 1922, at a meeting of the National Highway Traffic Association at the Automobile Club of America. Published in "Motor Travel," October, 1922. Revised to March 15, 1923, and republished May, 1923. 2 quarto pp. (Apply to the author at Washington, D. C.)

**Motion Pictures of the Department of Agriculture.**—Prepared by Fred W. Perkins, Assistant in Charge of Motion Pictures, Division of Publications. August, 1922. 16 pp. Giving a list and brief descriptions of films on animal and plant industry, game protection, forest fire protection, scenery and recreation in the forests, lumbering and grazing, road construction, and many phases of rural life; how these films are borrowed, and how they may be purchased. Price, 5 cents. (Apply to the Government Printing Office.)

**Know Your Town.**—Ten Sets of Twenty Questions. Published by the National League of Women Voters, 532 Seventeenth Street, Washington, D. C. January, 1923. Prepared in the belief that a knowledge of local history, problems, institutions, laws, and customs is fundamental to a study and understanding of the broader fields of government and politics. The questions are under the heads of History and Population; Homes and Living Costs; Health; Education; Industry and Workers; Recreation and Social Hygiene; Care of the Dependent and the Delinquent; Streets, Transportation, and Public Utilities; Courts and Juries; Local Government. Price 5 cents. (Apply to publishers.)

**Bulletin of the Association of City Planning Commissions, Pennsylvania Cities of the Third Class.**—Leo J. Buettner, Johnstown, Pa., is Secretary of the Association. This bulletin is issued in accordance with an understanding reached at a conference of representatives of City Planning Commissions of the cities of the third class, held January 10, 1923, at which it was voted that a permanent organization of the Commissions be created and that bulletins covering their work be issued from time to time, the material for the bulletins to be supplied from the minutes of the Commissions, reviewed and supplemented by the Bureau of Municipalities, of the Pennsylvania Department of Internal Affairs. Four numbers have been received, issued March 15, April 15, April 30 and June 1. (Apply to J. Herman Knisely, Director of the Bureau, at Harrisburg, Pa.)

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#### IN MUNICIPAL WORK

Federals are operating in every department of city work. The truck pictured here is a part of the garbage removal equipment in New York. The 1½ ton Federal is shown both loading and dumping.

*Write for Booklet S-10 — "Making One Thing Better."*

**FEDERAL MOTOR TRUCK COMPANY**  
DETROIT, MICHIGAN

# Methods, Materials and Appliances

News for City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

## The Advantages of Clay Pipe Culverts

The vitrified clay pipe culvert has relatively low cost, but it has another distinct advantage over the concrete culvert in that when it is installed, it is finished. There are no inside forms which the contractor has to come back to withdraw a few days later. The culvert can be put into service immediately without blocking or diverting streams and thus endangering or hindering road work. After a vitrified clay pipe culvert is built, it carries more water and collects less mud and weeds than a square culvert with a flat bottom. The reason for this is that a 24-inch pipe has an area of 3.14 square feet and the circumference measured around the inside surface is 6.28 lineal feet, giving 2 square feet of surface to each cubic foot of capacity. A 1½ by 2-foot culvert has a cross-section of 3 square feet, and the distance around the inside is 7 lineal feet, giving 2.33 square feet of surface per cubic foot of capacity. From this comparison, it is seen that water flowing through a round pipe meets with less surface, and consequently less friction, than in flowing through a square culvert of equal area.

Vitrified clay pipe not only has the less surface, but it also has a smoother surface. Under the actual conditions of road construction, it is almost impossible with any other material to get such a smooth, self-cleaning

surface as the glazed finish of this pipe. This is because the pipe is made in a factory, not in the field, and because it is glazed, tested by fire and inspected before shipment. It must be considered also that an unglazed surface will become rougher as time goes by and the carrying capacity constantly reduced accordingly.

According to the W. S. Dickey Clay Manufacturing Company, Kansas City, Mo., the carrying capacity of salt-glazed clay pipe exceeds those of other materials. The velocity of water in most culverts is very important for two reasons: first, the faster the flow, the greater the culvert capacity; second, the faster the flow, the less the deposits of weeds to obstruct the waterway. A rough or corrugated surface would tend naturally to retard the flow and hold obstructing deposits.

## Improvement in Sewage Ejector System

An improvement in the design of pneumatic sewage ejectors has been announced by Yeomans Brothers Company, Chicago, Ill., in the new Shone type S. D. V. ejector. The original Shone ejector was designed over 40 years ago, and up to this time, with practically no important changes, has been used in most parts of the world.

In the original design, the admission and exhaust of compressed air to and from the ejector receiver is controlled by an automatic piston valve located on the cover of the sewage receptacle and actuated by air pressure through a pilot slide valve mounted on top of the piston valve, much after the manner of the old-fashioned slide valve steam engine. The pilot slide valve is shifted by means of a system of links and lever connected to open cast iron bells which rise and fall at predetermined levels of sewage in the receiver. In the new type S. D. V. ejector, the piston valve is detached from the pilot valve and may be located at any desired distance therefrom. The standard practice is to mount the piston valve on a substantial cast iron floor stand on the basement or compressor room floor alongside the ejector pit. In the case of installations in underground chambers, where floor space above the pit is not available, the piston valve may be mounted on brackets on the pit walls as far as possible above the top of the ejector receiver. The



TRIPLE LINE OF 36-INCH DOUBLE-STRENGTH CULVERT PIPE WITH BRICK HEADWALL, IN BOWIE COUNTY, TEXAS



## TO MAKE YOUR TOWN WORTH LIVING IN

Small cities, rural communities and the outlying districts of the big cities probably suffer more inconvenience and discomfort from dust than from any other source.

The dust nuisance makes a good town look like a careless town. Every passing vehicle puts more dust on the furniture and in the food. Dust makes more work for the housewife—makes the trimmest lawn and gayest flower bed look dead and dull.

After years of experimenting with costly water sprinkling and with sticky messes of various kinds, road men have now found the way to eliminate the dust nuisance for the entire season and to bind road surfaces at the same time and thereby lengthen the life of the road.

The modern method is to distribute a white flaky chemical salt on the roads twice each season. This chemical, called DOWFLAKE comes in 100 lb. moisture proof bags and is distributed on the road with an ordinary line spreader. No expensive machinery is necessary or desirable.

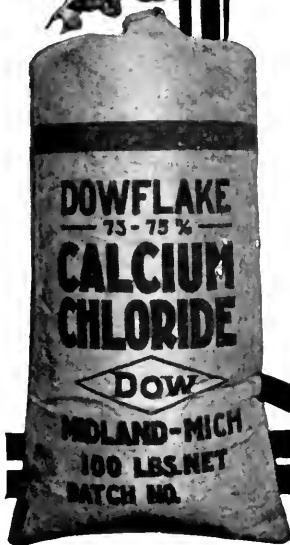
DOWFLAKE binds and dustproofs roads by keeping them moist and firm. It begins to absorb moisture from the air as soon as it is spread on the road. It absorbs several times its weight in water, dissolves itself—and holds the moisture for months.

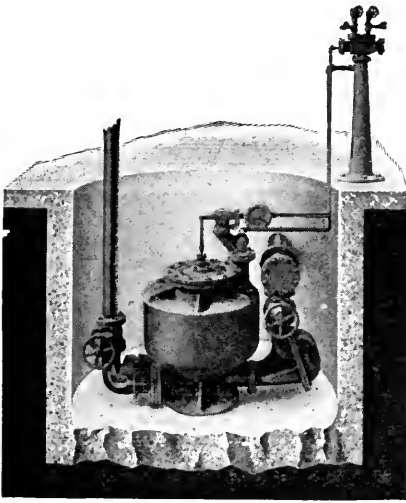
"How to Maintain Roads" is a new book on Dust Prevention and Low Cost Road Maintenance. Write for your copy today.

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**EJECTOR INSTALLATION, SHOWING  
PISTON VALVE MOUNTED ON WALL**

pilot valve located on the receiver is connected to the piston valve by means of small iron piping or copper tubing, and there is no direct connection whatever with the receiver.

The distinct advantages claimed for this design are the preventing of small floating obstructions and grit from being carried up into the valve in case of inflow greatly in excess of the capacity of the ejector or in case the

ejectors are shut down for any length of time and the system is allowed to fill up above the level of the air valve.

Yeomans Brothers Company has recently been awarded contracts for large installations of Shone ejectors for the cities of Cleveland, Ohio, Menasha, Wis., and Dinuba, Calif.

### **Novel Sewer-Cleaning Job**

When the main sewer line of the city of Belle Plaine, Iowa, running out four or five miles along a country road, stopped up, considerable difficulty was experienced in cleaning it. Finally, the Turbine Sewer Machine Company of Milwaukee, Wis., was called in to handle the job.

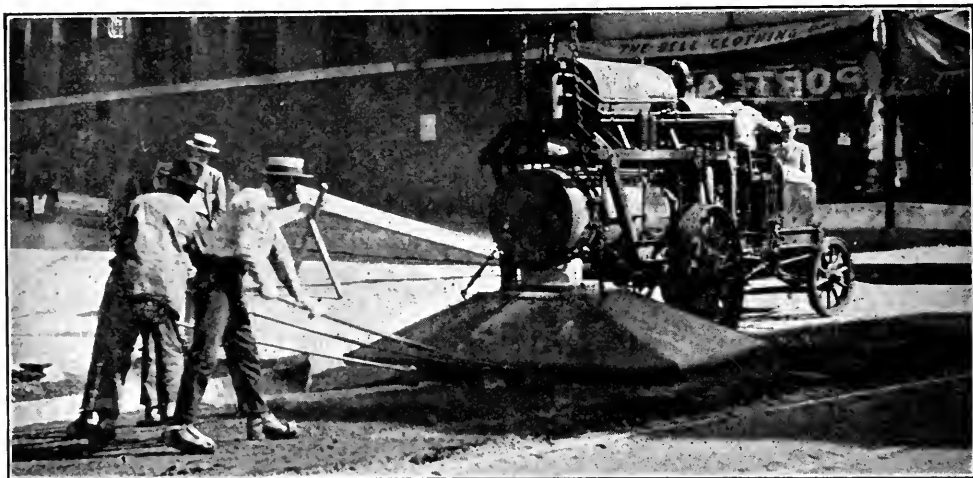
As no water was available from any fire line near-by, it was necessary to get a fire engine, which pumped water out of another sewer and through a hose, to operate the Turbine sewer-cleaning machine.

During the progress of cleaning this sewer, a cement bag filled with sand was removed. This bag had been lost in the sewer during a previous attempt to clean it and was one of the causes of the complete stoppage of the sewer. In cleaning the Belle Plaine sewer with the Turbine machine, a great deal of money was saved that would necessarily have been expended had it been necessary to dig up the sewer in order to clean it. The accompanying illustrations are prepared from photographs taken by one of the city officials when the job was under way.



**THE OLD STEAMER THAT FURNISHED THE WATER FOR CLEANING THE SEWER**

## MAKE BETTER ASPHALT STREET REPAIRS



### The Improved Equitable Asphalt Heater Softens 1500 Square Yards a Day

Proper bonding of old and new asphalt is made possible by this fool proof machine which does not require hot water to operate. The heating hood slides on the ground saving time and heat. The machine heats 45 square feet of pavement in 1 to 2 minutes and moves quickly ahead. Send for our new prices and specifications.

**THE EQUITABLE ASPHALT MAINTENANCE COMPANY**  
1901 Campbell Street  
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and MANUFACTURING CO.  
LIMA, OHIO

*Has acquired the entire  
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"The Canton-Hughes Pump Company"  
And is now manufacturing the full line of  
"CANTON - HUGHES" pumping  
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Duplex and single pumps for all purposes,  
surface and jet condensing apparatus,  
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We also carry a full line of repairs for  
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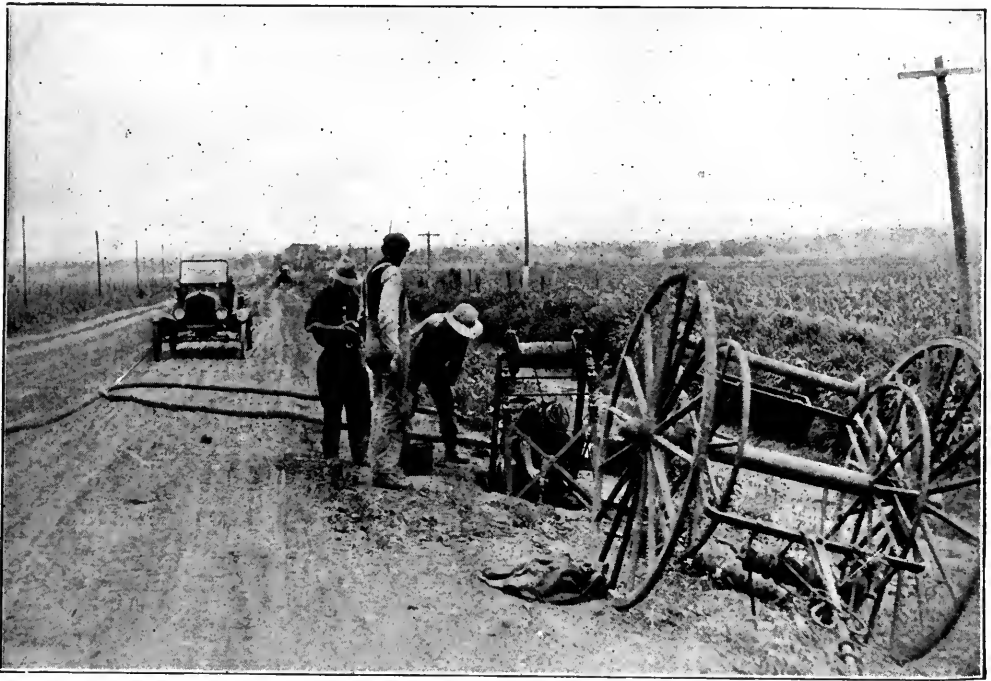
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*Phone, write, or wire our nearest office.*

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(Subsidiary of Pittsburgh Steel Co.)  
708 Union Arcade, Pittsburgh, Pa.





SENDING THE SEWER CLEANING MACHINE THROUGH THE LINE

### An Electric Flashing Street Traffic Signal

An inexpensive electric flashing traffic signal for mounting on a 2-inch pipe at any street intersection, has recently been placed on the market by the Dressel, Main Co., Inc., Grand Central Terminal, New York City. This flashing signal is built of heavy steel, is of the railroad type for electrical operation, and gives forty forceful flashes per minute. A "keep-to-the-right" or direction sign may be mounted immediately below the lenses.

The Dressel flasher is a steel lamp with a white japanned finish. It has four 25-power, high-transmission,  $5\frac{3}{8}$ -inch red \ Spreadlight lenses or may be furnished with green or amber lenses, to suit local conditions. The flashing mechanism is arranged for one 40-watt electric bulb, or, if dual lighting is desired, two sockets are provided for two 25-watt bulbs. This signal has an unusually high visibility, making it easily seen several blocks away, thus minimizing traffic delays and accidents, as the driver immediately recognizes that he must turn to the right past the flashing signal.

### 135 New Motor Trucks for New York

The city of New York has recently placed another large order for motor trucks with the White Company, Cleveland, Ohio, the contract calling for 100 2-ton power dumping units. These trucks will go into service in the street cleaning department, and will have bodies of the combination steel and wood panel type with a capacity of 14 cubic yards.

### Experimental Station for Fire-Fighting

About  $2\frac{1}{2}$  acres of land between the present plant of the Foamite-Childs Corporation, Utica, N. Y., and the Erie Canal has been leased by this organization of fire protection engineers for the construction of an outdoor experimental station. The property has a frontage of 300 feet and adjoins a similar plot of open ground which has been in use for several months in connection with the indoor laboratory. Among other features planned by the experimental station are a layout of dip-tanks, drain-boards and other mechanical equipment associated with the hazarded fire risks found in manufacturing plants and the typical chemical solution storage tanks and piping which are used for such hazards. There will also be special features for the testing and perfecting of new Foamite-Childs fire protection devices now in the process of development.

While the use of this outdoor laboratory will be primarily of interest to industrial executives, many fire engineers in municipal service will be glad to know of the work which is being carried on to reduce fire hazards in the industrial districts of municipalities.

### A Train Hitch for Wagons

The Watson train hitch for wagons has again placed these units in lively competition with the motor truck, and since there is no motor, the depreciation of the equipment is much lower than the investment,

*Open to  
Traffic in  
10 Days!*

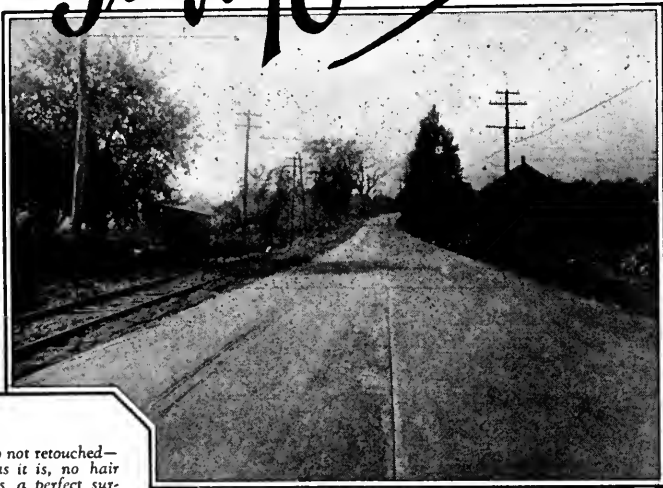


Photo not retouched—  
just as it is, no hair  
cracks, a perfect sur-  
face cured by Solvay  
Calcium Chloride.

THE concrete on the road pictured above was placed October 5th and 6th and the road was opened to traffic on October 16th!

That shows a real saving of time not only for the contractor, who thus receives his money that much sooner, but for the Highway Engineer who thus is so much sooner enabled to turn to other work, and also there is a real service to the community, which is able to make use of the road so much sooner.

State and County Engineers, wherever Calcium Chloride curing has been used, are unanimous in their commendation. Results are certain with Solvay because it automatically proceeds with the curing. There is no worry concerning daily sprinkling, no expense for inspectors. Once Solvay is applied the curing goes ahead and you quickly have the road in use, a strong perfectly cured concrete highway.

Solvay may be obtained in drums containing 375 lbs. or in the moisture-proof, easy to handle 100-lb. bag, shipped from 50 conveniently located distributing points.

**For CONCRETE CURING**

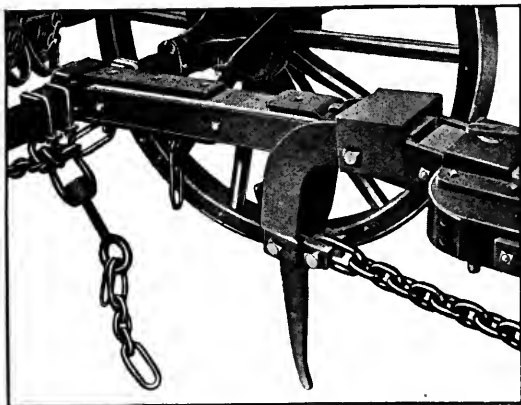
*use*

**SOLVAY**

*Free Running*  
**Calcium Chloride**

The Solvay Method is cheaper, quicker, surer, more efficient than the old time covering methods. Let us prove it—write for our latest literature or send us details of your work and our engineers will give you the benefit of their experience without charge. Address

The SOLVAY PROCESS CO., Dept. J, Syracuse, New York

**COUPLING FOR WAGONS UNHITCHED**

much smaller. With three wagons in a train hauled by a tractor, there is only one motor to get out of order, to 10 to 20 yards of hauling capacity. If the tractor should fall down, which is not likely with its present development, it is only necessary to slip poles into the wagons and use them with horses.

The train hitch which has been developed by the Watson Truck Corporation, Canastota, N. Y., is a novel but practical device. In hauling a train of two or three wagons, the entire strain does not come on the draw-bar of the first wagon, but is carried by a chain which extends beneath all the wagons in the train. The draw-bar of each individual wagon is attached to the chain, and the hook by which the individual wagon is attached is so constructed that it takes up all of the slack in the chain. The coupling pole in the Watson train hitch is flexible and moves up or down with every unevenness of the road, thus preventing any pinching or twisting of the rear axle. The wagons follow closely and track evenly, with no swaying from the track, even over the roughest going.

### **A Tar and Asphalt Heater in Trailer Form**

A tar and asphalt heater made specially for mounting on the U. S. Army trailers which are now lying unused in state, county and city storage yards, has been designed and placed on the market by Littleford Brothers, 500 East Pearl Street, Cincinnati, Ohio. The placing of a tar and asphalt heater on a spring-suspended chassis with rubber tires and roller-bearing wheels has solved a transportation problem which in the past greatly limited the use of this kind of equipment.

With this superior running gear, a heater can be trailed behind rapidly moving vehicles in safety, thus enabling this piece of highway department equipment to cover more mileage and do better work.

Where the patrol system of maintenance has been inaugurated, repair gangs will be able to cover their districts more frequently and with greater efficiency and economy, and when not used in this capacity, the heater is large enough to be used at the central mixing plant.

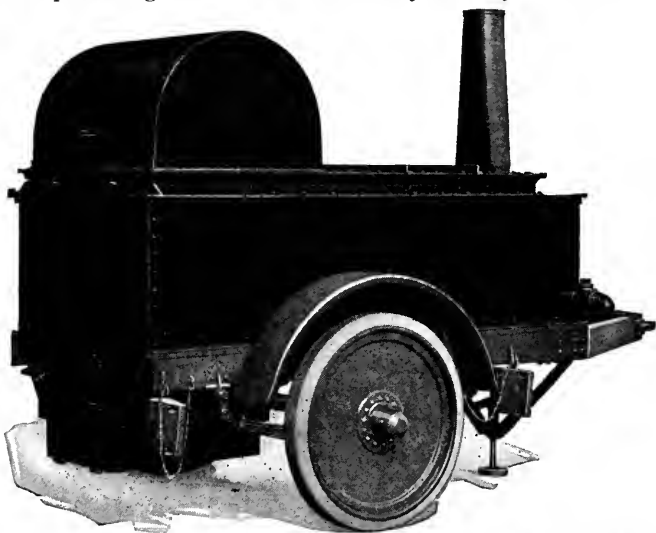
The seams of this 300-gallon kettle are electrically welded. A 2-inch draw-off valve is provided on each side. The cover of the heater is arranged with a warming hood under which a barrel of tar or asphalt may be placed for draining. The furnace shell, which completely surrounds the kettle and is supported on each side, is bolted securely to the chassis frame.

A large fire-box with an improved type fire-door and renewable grate bars is conveniently located at the rear. It is provided with a large ash-pit and draft-control door.

### **A Motor Tree-Spraying Outfit**

Readers of THE AMERICAN CITY in municipalities and counties where highway trees must be sprayed to protect them from specific pests will be interested in the outfit illustrated below, which is used by the State Board of Forestry of California for spraying the Monterey cypress badly infected with cypress bark scale on the state highways around Ignacio, Marin County, Calif.

The equipment consists of a Bean orchard sprayer made by the Bean Spray Pump Company, San José, Calif., carrying a 150-gallon tank, together with a pump and agitator. This machine was hired by the day. The rest of



**THIS TAR AND ASPHALT HEATER MOUNTED ON A PNEUMATIC TRAILER SHOULD PROVE A GREAT HELP TO MUNICIPAL DEPARTMENTS**



# Uniformity—Service Responsibility

Uniformity of material has been the secret of the uniform success of "Kyrock"—the rock asphalt produced only by this company. Before the asphalt rock is quarried, it is core drilled and analyzed. The quarry faces are sampled and tested, and finally a laboratory analysis is run on each ton of the finished material before it leaves our plant.

Kyrock produced today is the same, by actual test, as that used in the famous Camp Knox Road, and on sections of the Dixie, Lincoln and Johnson Highways. Kyrock has removed the hazard of surface failure, always present in artificial bituminous mixtures.

\* \* \* \*

The Kentucky Rock Asphalt Company keeps close contact with all Kyrock construction through its engineering department. Engineers and contractors inexperienced in building rock asphalt pavements are given personal assistance to insure success of the work.

Kyrock service begins when the plans are drawn and does not end until the pavement is successfully completed.

\* \* \* \*

Experienced in the many difficulties of producing Kentucky Rock Asphalt and removing it from the rugged country where it is found, this company is extremely careful to protect the interests of engineers, officials and contractors. A large storage of material, built up during the winter months, insures against annoying and costly delays in delivery. No orders are accepted in excess of our known ability to deliver.

\* \* \* \*

Our engineering department has prepared typical specifications and cross sections for new construction and re-construction on all standard types of bases. We shall be glad of an opportunity to consult with you or to forward literature describing the production and uses of Kyrock. Write for booklet D-4.

## Kentucky Rock Asphalt Co.

Incorporated

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*Kyrock Means Uniformity, Service and Responsibility*



MOTOR POWER SPRAYING OUTFIT USED ALONG CALIFORNIA HIGHWAY

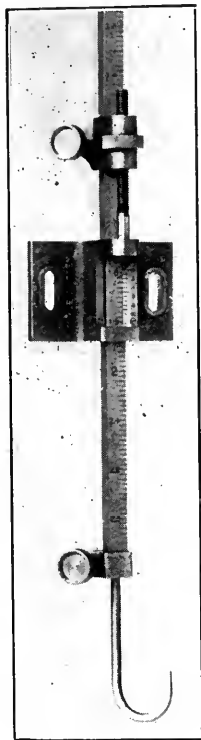
the equipment was furnished by the Highway Commission and consists of a 1,000-gallon tank mounted on trucks. The tank truck is equipped with a double-action pump which permits either filling itself or the spray tank very quickly. Inasmuch as it was necessary to convey water for five or six miles, this pump proved very serviceable. The Highway Commission also furnished another truck which was utilized in hauling the necessary material, oil, spreader and other articles.

The spraying was under the direction of W. E. Glendinning, highway tree expert of the California State Board of Forestry, Chico, Calif.

### Improvements in Gurley Hook Gage

As a result of their experience in observing the use of the Gurley hook gage in the hands of those who use hydraulic engineering instruments constantly, W. & L. E. Gurley, of Troy, N. Y., have devised certain refinements which, while they do not change the general operating function of the Gurley hook gage, do make it far more convenient to the user. It has not been a matter of improving the accuracy of the instrument, for that has been very definitely established at a highly satisfactory point. The improvement has been in eliminating as far as possible the chance of inaccurate reading through the absence of good light or through other troublesome conditions.

The new hook gage is graduated on a square tube, the change from the usual round tube



A HOOK GAGE WITH HELPFUL REFINEMENTS

overcoming the possibility of turning in the brackets, a happening which often turned the graduated side of the round tube out of line with the vernier. At the same time the new construction brings the reading facing flush with the vernier, so that there is no shadow or handicap to accurate observation. The clamp nuts have been changed slightly to give a little extra clearance between the knurled heads and the wall on which the gage is mounted. In addition, the clamps have been made larger and more positive, as well as easier to get at.

The adjusting screw has been brought over into line with the graduated screw of the gage, so that its vertical movement can be accomplished more easily and a fine setting arrived at with the minimum of effort. The hook and its rod are still of a round section and so arranged that the rod can be extended as necessary to get the right height and rotated so that the tip of the hook breaks the surface where light reflection is the best. The manufacturers report that this new gage is in production and this improved No. 628 model will be furnished on all future orders.

### Two New District Engineers

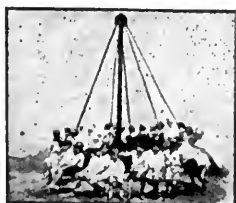
The Asphalt Association, 25 West 43d Street, New York City, has announced the appointment of two field engineers to succeed James R. Valk, deceased, and John B. Hittell, resigned. The Southeastern District of the Association, of which the late Mr. Valk was Manager, has been undergoing reorganization, and the headquarters have been moved from Atlanta, Ga., to Charlotte, N. C. Lloyd D. Smoot, Washington, D. C., formerly General Superintendent of the Atlantic Bitulithic Company, is Mr. Valk's successor. Mr. Smoot for seven and a half years was Director of Public Works at Jacksonville, Fla. H. P. Grien, Statesville, N. C., remains with the Charlotte office as engineer in charge of field work in North Carolina.

As successor to John B. Hittell, who resigned recently as District Manager in Chicago, to accept reappointment to his old position as Chief Street Engineer, Chicago Board of Local Improvements, the Association has appointed George W. Craig, who for the past ten years has been City Engineer for Calgary, Canada.

THE AMERICAN CITY

# THE FUN FULL LINE PLAYGROUND EQUIPMENT

## Playgrounds like this —



# HILL-STANDARD CO.

ANDERSON INDIANA



Vol. XXIX  
No. 2

AUGUST  
1923

# The American City Magazine

443 Fourth Ave.  
NEW YORK

50 Cents  
\$4 a Year

## Photographic Histories of Public Improvements

**I**N pictorial records of things well done there are values, both historical and inspirational, which are often overlooked. When two blades of grass are made to grow where one grew before, too seldom is a photograph secured of the one blade before improvement work starts. And later on, the lament is heard: Why didn't we get a picture of the old shack where the new city hall now stands? or of the dump which has been transformed into a playground? or of the collection of ruts which is now a well-paved street?

"Before and after" views of municipal improvements have many uses. They form graphic records of great value to the future historian of the city; they add interest and impressiveness to annual reports of city departments; they can be used effectively by the Chamber of Commerce in publicity booklets; they find a place on the panels of city planning and civic exhibits in other communities; and they form most acceptable illustrations for the pages of *THE AMERICAN CITY*—in witness whereof attention is respectfully directed to the items and pictures on this and the next five pages.

### ***River Banks Made Safe and Beautiful***

HAMILTON, OHIO.—The accompanying pictures show the wonderful change which has been wrought in the banks of the Great Miami River through the work of the Miami Conservancy District, where this frequently turbulent stream passes through Hamilton. When the flood of 1913 swept through Hamilton and caused a property loss of more than seven millions of dollars and claimed more than a hundred human lives, no one realized that out of this disaster would come the beauty that presents itself to-day with the work of flood prevention completed.

When Hamilton dug itself out of the mud of 1913, after it had buried its dead, the Chamber of Commerce stepped in as one of the chief factors in aiding the solution of Hamilton's new problem of flood prevention. Meetings of citizens and business men were held in the rooms of the Chamber of Commerce, the plans for flood prevention were worked out in detail, and then an aggressive campaign in behalf of the program was worked out through the Chamber of Commerce and its affiliated bodies.

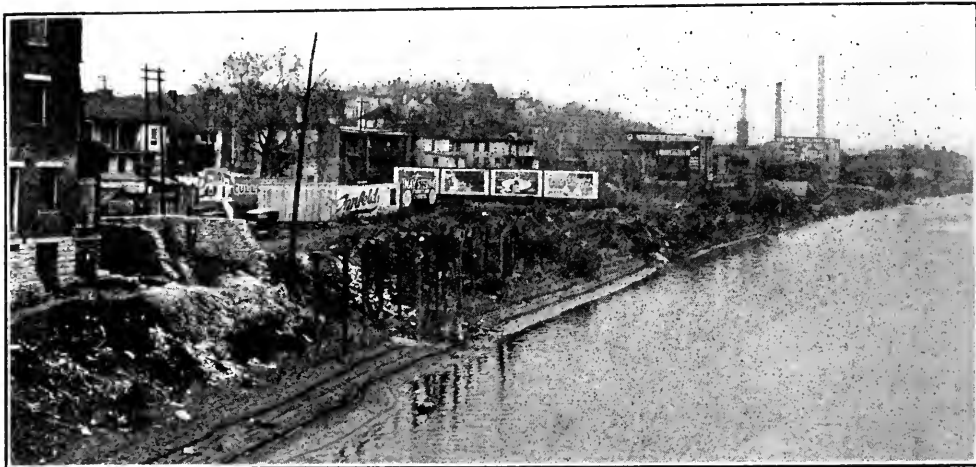
It did not require a great amount of educational work to convince the people of



Hamilton that never again should they face the disaster of 1913; but it did require effort to organize those forces which meant the carrying out of a definite program for the elimination of the possibilities of another disaster. These efforts were fostered by the Chamber of Commerce. And when once the work was begun, many of the suggestions which led to the beautification

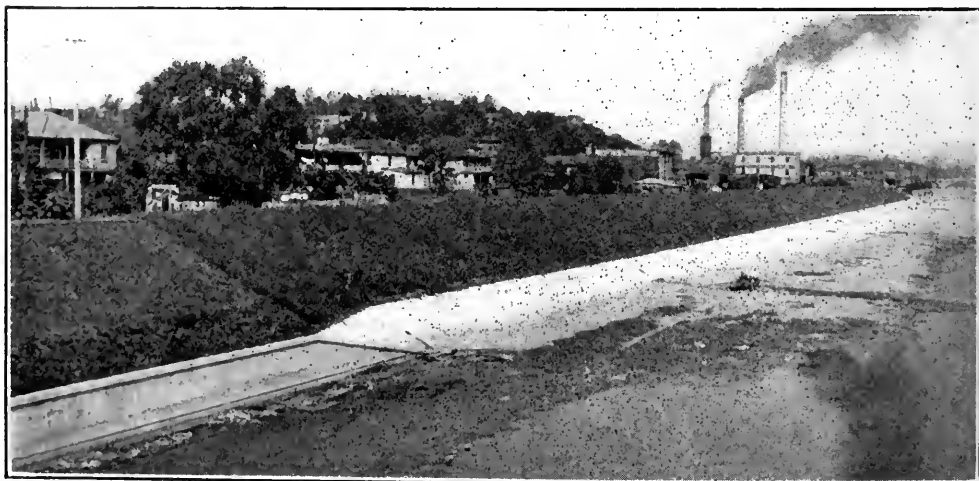
of the river banks through Hamilton were made by the various agencies working through the Chamber of Commerce. Eventually these levees will be boulevarded and made still more attractive, thus adding still greater beauty to a city proud of its accomplishments and becoming noted for its many beauty-spots.

JOHN E. NORTHWAY,  
Secretary-Manager, Hamilton Chamber of Commerce.



WEST BANK OF THE MIAMI AT HAMILTON, MARCH 1, 1918

The three-story building and the old stone foundation shown in the left of the picture were in the way of the proposed levee, and obstructed the waterway of the Main-High bridge. The river bank above the foundation contained piling, old foundations, trash, and projecting sewers, and was covered with a heavy growth of willows. The portion of the city to the west was subject to overflow from high river stages, as there was no levee at this point. The river bank was unsightly, and was unsanitary as well



WEST BANK OF THE MIAMI AT HAMILTON, LESS THAN FIVE YEARS LATER

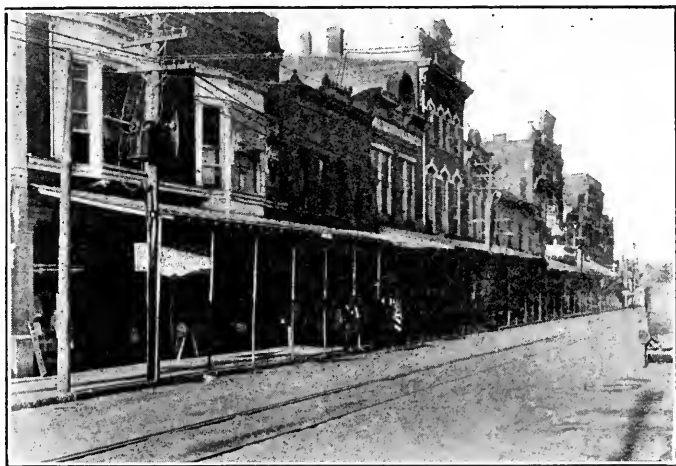
The three-story building and the old foundation have been removed and the river widened somewhat. The river channel has also been deepened and cleared of bars along the shore. The piling, old foundations, trash and other obstructions have been taken out. A substantial earthen levee has been built to protect the west side of Hamilton. The wide white band along the base of the levee is the concrete by galvanized cables. The portion of the levee above the revetment has been sown to grass, and good growth has resulted. The wall shown in the lower left-hand corner is the beginning of the transition from the river section to the bridge opening. The clean banks and grassy slopes of the new levee have been a great civic improvement for Hamilton

## Main Street, Before and After

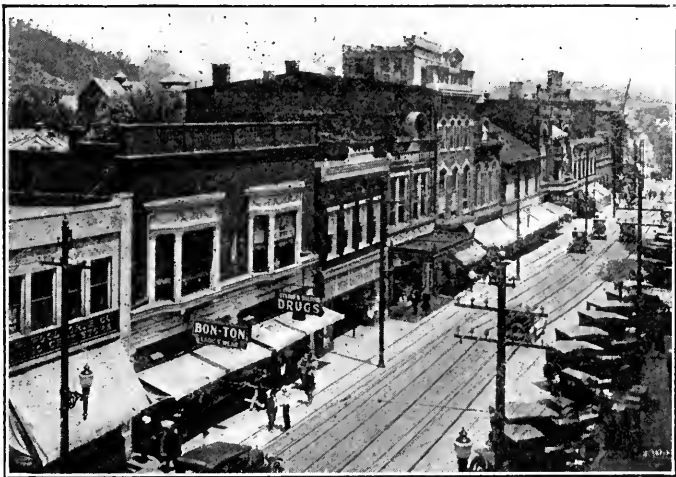
CLARKSBURG, W. VA.—The most outstanding recent achievement of the Clarksburg Chamber of Commerce is shown in the accompanying "before and after" views of Main Street. Special committees of the Chamber solicited the property owners in connection with the costs of the lighting system and secured their cooperation in removing the unsightly wooden awnings.

The new installation on Main Street and Pike Street consists of 72 poles and fixtures, which are of the Electric Railway Equipment Company type. The poles are placed approximately 100 feet apart, diagonally on the two sides of both streets. The lights are of General Electric make, 600 candle-power each. The cost was \$120 for the pole and \$50 for the light fixture. Property owners paid 77.1 cents per front foot toward the entire cost, the balance being divided between the lighting and street car companies.

G. D. THIELEN,  
Managing Secretary, Clarksburg Chamber of Commerce.



MAIN STREET, CLARKSBURG, WITH ITS OLD WOODEN POLES AND AWNINGS AND SIDEWALK OBSTRUCTIONS



MAIN STREET, CLARKSBURG, AS IT LOOKS TO-DAY

The contrast with the old conditions will be even greater when the overhead wires are removed to side streets and alleys

## Coney Island's New Municipal Boardwalk

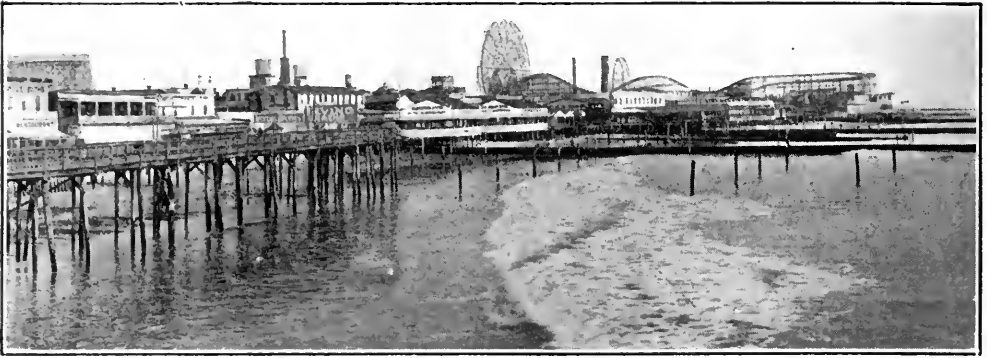
These paragraphs are from an article, "Brooklyn, Present and Future," by Edward Riegelmann, President of the Borough of Brooklyn, in the recently published Official Book of the Silver Jubilee of Greater New York:

The Coney Island Boardwalk extends from the foot of Ocean Parkway to the entrance of Sea Gate on West 37th Street, the entire length of the city-owned beach, for a distance of 9,500 feet. The walk is 80 feet wide, or 20 feet wider than the widest part of the Atlantic City boardwalk. The floor surface is 13 feet above normal high tide, and can be reached from adjacent streets by double ramps at each

intersection. The height of the walk was fixed to give ample clear space under the boardwalk, both longitudinally and laterally.

The walk itself is made of a series of pile bents 20 feet apart. Each bent is composed of two sets of four reinforced concrete piles, each set supporting a reinforced concrete girder. These girders cantilever out beyond the end piles, thus having a longitudinal expansion joint down the middle of the structure. The piles are 14 inches square and 20 feet long and are spaced 10 feet on center. Each pile has a penetration in the sand of at least 20 feet when the sandfill is in place.

The land for this walk was acquired as a public beach on October 1, 1921, and the value of the land so acquired has not yet been determined. The total cost of construction, engineering and inspection is approximately \$2,000,000. (See pictures on next page.)

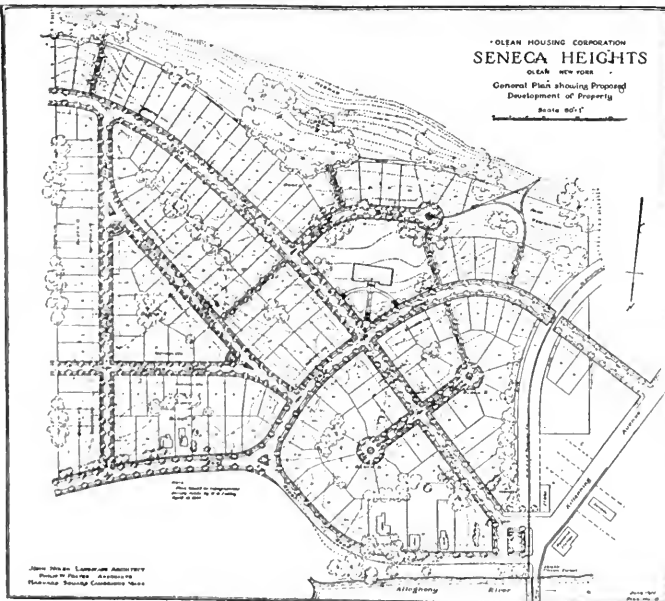


A SECTION OF THE CONEY ISLAND WATER-FRONT, AS IT WAS IN 1921 AND AS IT IS IN 1923  
(See item on preceding page)

### *What a Housing Corporation Has Accomplished*

OLEAN, N. Y.—The Olean Housing Corporation was organized in 1920 under

plank No. 5 of the Chamber of Commerce program of work, and the 200-acre site for the garden city known as Seneca Heights was chosen by the subscribers to the fund by stock vote.



The new development is on the slope of Mount Hermans, one of the foothills of the Alleghenies, opposite the city. This location on the bank of the Allegheny River is one of great natural beauty, but was worthless until the Olean flood abatement project was completed in 1919 as a part of a previous program of the local Chamber.

Values were so depressed along the approaches to the present garden city that these sites were occupied only by the poorest class of buildings, and it was considered Olean's most un-

desirable section. The promoters of the flood abatement were the first to realize the residential possibilities of this mountainside, and in relieving a housing need they have developed what is already regarded as one of the most beautiful residential districts in western New York.

The Housing Corporation in the beginning built in advance of demand, but this season an increased organization is kept busy on special orders varying from humble six-room cottages to stately homes.

Employing the same system by which the city's eleven-mile dyke system was built, unlimited quantities of sand and gravel are dredged from the river for construction. This includes the paving of nearly a mile of streets, which will be completed this year in accordance with the accompanying map. The school site shown in the center of the map has been presented to the district.

The landscape architect of the development is John Nolen, of Cambridge, Mass.

E. W. FITZGERALD,  
Secretary, Chamber of Commerce.



LOOKING DOWN YORK STREET, SENECA HEIGHTS, AS CONSTRUCTION WAS JUST BEGINNING

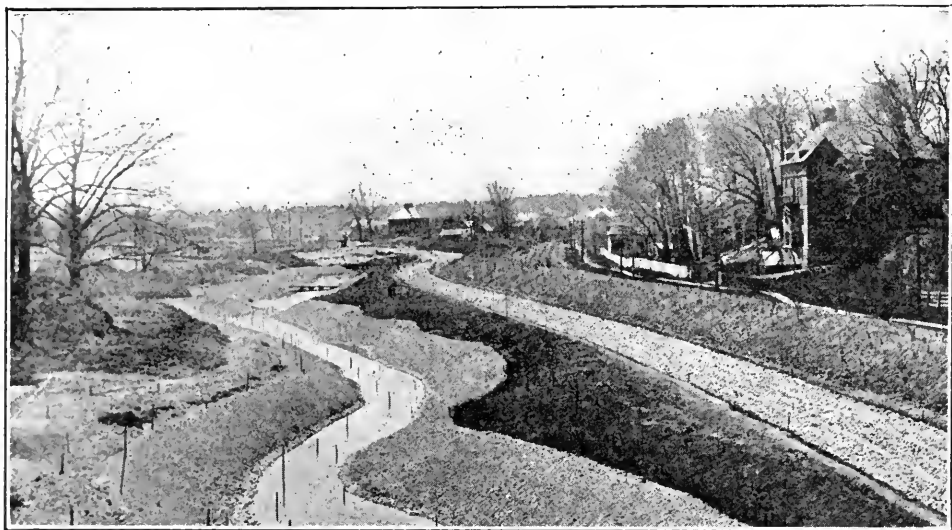
### *The Place of the Beautiful in the City Plan*

WE must recognize that most of us live in ugly cities, and there is little or no need for it. The question is not one of optimism or pessimism, but of honestly facing facts. True, we must be practical and look after the utilitarian needs of modern city life. That, however, does not involve a neglect of the beautiful. You may remember the phrase of the old Bishop in "Les Misérables," "The beautiful is as useful as the useful," adding, "and perhaps more so." In our city planning we must provide for people, and if we are to successfully provide for people, we must think of their happiness; and if they are to be happy, the beautiful must be included in any complete program. Such a program calls for the transformation so far as that is possible through the replanning of existing cities, but the program should also include the building of new cities on new lines, free from the hampering conditions that are characteristic of old cities. How entrancing is this prospect! To have any part in a broad city planning program is to have an enviable life, giving opportunity for genuine and permanent public service.

—JOHN NOLEN,



VIEW FROM THE SAME POINT A YEAR LATER, SHOWING THE DEVELOPMENT OF YORK STREET



THE RIVERWAY, BOSTON PARK SYSTEM, IN 1892, DURING CONSTRUCTION

This beautiful and popular water-park represents the transformation of what was once an ugly, neglected and unsanitary stream. Practically everything in the picture below, with the exception of the old trees, was artificially created according to the plans of the designers, Olmsted Brothers, of Brookline, Mass. The dark point of land in the planting area near the center of the early view is the same as the one occupied by the oak tree on the right in the later view. The old trees and certain curves in the outline of the planting areas at high-water mark can also be easily identified



THE RIVERWAY, BOSTON PARK SYSTEM, 28 YEARS AFTER CONSTRUCTION

# The Economic Value of Public Parks and Scenic Preservation

By George F. Kunz, A.M., Sc. D.

President, American Scenic and Historic Preservation Society

**P**UBLIC parks and reservations—municipal, state and national—have several values—esthetic, educational, hygienic (which includes recreative), and economic. These values are so closely related and interdependent that it is difficult to separate them and to say where one ends and the other begins, for, as a matter of fact, it is the esthetic and the hygienic values that give parks their economic value.

It is a mistaken notion that only the comparatively few cultured and highly educated people have esthetic appreciation of parks, reservations, and places of natural beauty. Esthetic appreciation is a natural instinct and a very democratic possession. Children would rather play on the grass than on the pavement. They prefer a tree to a lamp-post or telegraph pole in their games. They instinctively pluck flowers if they can when they see them.

## Happiness Is an Asset

Whatever gives happiness has value, although that value cannot always be expressed in terms of dollars and cents—and yet, frequently, it can. In a residential district, a house and lot situated amidst neighbors who have unkempt and untidy back yards is not as valuable in dollars and cents as one surrounded by neighbors who have attractive dooryards and back yards. Barren dirt house lots, with heaps of rubbish of all kinds, are a poor asset to the owner and neighbors; whereas grassy lawns, trees, shrubs, gardens, and general tidiness are an actual economic asset to the whole neighborhood. Sometimes a single beautiful tree, or a single great rock, will make a place famous and add to its value. The same argument applies to public streets and public parks. A tree-lined roadway or a public park is a public asset, and by a public asset we mean an asset of the individual people who compose the public. It enhances their pleasure and comfort and the value of the neighboring property.

The same is true of almost any natural feature within a town or its neighborhood. No matter how level and seemingly unpicturesque the region may be, there are almost always gullies or ravines, protected from the wind, in the bottom of which the flora and other vegetation are more prolific than on the wind-swept upper levels. These gullies or ravines are often used injudiciously by the neighboring inhabitants as dumping places for garbage and refuse material. If, instead, the inhabitants would bury or otherwise dispose of their refuse, and keep the ravines clean and attractive, these places would be transformed into parks and become an asset instead of a detriment to the community.

An interesting illustration of the value of preserving glen scenery within a town is afforded by the Cascadilla Glen in Ithaca, N. Y.\* This beautiful ravine runs along the southern boundary of the Cornell University campus. A few years ago, the Cascadilla Company, including one of the public-spirited Trustees of the American Scenic and Historic Preservation Society, Hon. Robert H. Treman, acquired an old mill, beautified the property, and conveyed to Cornell University all their rights in Cascadilla stream down to a certain bridge. Recently, Mr. and Mrs. Treman conveyed to the University some lots near the bridge, permitting the removal of some houses and the opening up of a beautiful vista up the ravine and toward the campus.

We may cite, as an illustration of the economic value of a private park, Gramercy Park, in New York City. In 1831 Samuel B. Ruggles acquired from James Duane a farm of 27 acres, including the present Gramercy Park and surrounding property. This farm comprised an area equal to about 108 city lots. Ruggles converted 42 lots into a private park and sold the surrounding lots with certain restric-

\* See the front cover of this issue.



tions and with the privilege of the use of the park. It was a wise piece of business, for the esthetic and hygienic value of the park of 42 lots enhanced the economic value of the surrounding 66 lots more than 100 per cent.

#### Parks Increase Land Value

As an illustration of the economic value of a great city park, we may cite Central Park. That great municipal park contains 843 acres. Back in 1838, when land was bought for the old Croton Reservoir, it cost about \$2,316 an acre. Eighteen years later, in 1856, land for the park cost about \$6,-838 an acre, an increase in value of about 399 per cent. In 1863, the last purchase for the park cost about \$18,147 an acre, an increase of 780 per cent in 25 years. The land for the whole park cost \$7,389,-727, and is carried on the books of the Tax Department as now worth \$225,000,-000, an increase of over 30-fold (3,000 per cent) in value. The foregoing figures refer to the land value of Central Park itself. The increase in the value of the surrounding property has been more than twice that rate. In 1856 the valuation of the real estate in all of Manhattan Island north of 40th Street, upon which there were comparatively few improvements, was \$25,-671,490. Ten years ago the valuation of the same land without improvements, was \$1,-941,787,550, while the valuation of the land and building was \$2,888,206,240. The increase in the land value above of the surrounding property, due largely to the presence of Central Park, was over 75-fold—more than 7,500 per cent.

Except in desert regions, scenery cannot be preserved as natural scenery without trees, birds, and other animals. Trees are the natural ornaments and protectors of the land; and birds and four-footed animals are the natural inhabitants of the woods. These are parts of a perfect scenery. If the trees along the roadside and in the fields are preserved, the birds will come to them, and if the trees are thick enough and wild life protected, the wild animals will seek their refuge there. These are all elements of scenic and educational value as well as economic value.

There have been a number of instances where scenic preservation or beautifying has brought great financial return. One

of the most notable of these instances is that of the Cathedral at Copenhagen. This Cathedral was built in the outskirts of the city and was left in an unfinished condition for over a century, with the result that nothing but shanties and hovels surrounded it. Finally, a wealthy citizen of Copenhagen volunteered to complete the edifice at his own expense, provided he were given the authority to proceed. The authority was given, he completed the Cathedral, and not only paid for its completion, but incidentally cleared a considerable sum of money above the cost of the work, because he had immediately bought all the land in the vicinity of the Cathedral, made a beautiful select section of it, and sold it to be used only for the finest residential property.

Another instance is that of the Buttes Chaumont. This chalk mountain in the outskirts of Paris was filled with pits and holes and was the abode of the most questionable characters during the French Commune. Gradually lakes were formed where there were holes, and the hillsides were set with trees, with the result that a splendid residential section now surrounds this formerly forbidding and dangerous region.

If, when the plans for the city of New York above 10th Street were being prepared, there had been a landscape architect, or some one with judgment in charge of the matter, he could have used the various ponds for small lakes, he would not have eradicated every hill, but would here and there have given us a small park, and would not have laid out the city on the lines of a checkerboard, with a loss of both beauty and accessibility. Instead of giving us a few avenues and many streets, he would have reversed the order and given us many avenues and fewer streets, with the result that traffic would not have been rendered difficult for many years and almost impossible, as it is to-day. Moreover, as the sun rises in the east and sets in the west, it would have meant that two or three times as many homes as now would have had sunlight all the day, whereas at the present time in many of the side streets the sun is never seen and the streets are filled with ice. The death rate of the entire city has been notably increased by the little knowledge shown of what New York was to be in the future.



# Cost of Street Lighting in Baltimore

Both Gas and Electric Lights Used in Streets and Alleys

By John J. Hanson

Superintendent of Lamps and Lighting, Baltimore, Md.

ALL the ornamental luminous arc lamps and fixtures comprising the White Way district in Baltimore, the ornamental lamps and fixtures in service on the several boulevards in North Baltimore, on the City Hall Plaza, the Polytechnic Institute, the Eastern and Western Female High Schools, and the Sewage Pumping-Station, and on the various bridges, together with the gas lamp posts and a number of boulevard lanterns and patent lamp burners, are the property of the city. All other lamps and fixtures are the property of the several contractors.

At the present time there are in service throughout the city under the supervision of the Department of Lamps and Lighting 28,489 street lamps of various types as follows:

Incandescent mantle gas lamps.....	14,335
Incandescent electric lamps, 40 C.P. overhead series .....	3,084
Incandescent electric lamps, 40 C.P. underground series .....	753
Incandescent electric lamps, 40 C.P. multiple..	771
Incandescent electric lamps, 60 C.P. overhead series .....	2,977
Incandescent electric lamps, 200 C.P. overhead series .....	211
Incandescent electric lamps, 400 C.P. overhead series .....	586
Incandescent electric lamps, 400 C.P. underground series .....	186
Incandescent electric lamps, 1,000 C.P. overhead series .....	3
Incandescent electric lamps, 40-80 C.P. (city maintenance) .....	1,740
4-ampere electric arc lamps, overhead districts	1,267
4-ampere electric arc lamps, underground districts .....	1,384
6.6-ampere White Way arc lamps, underground all-night districts .....	911
6.6-ampere White Way arc lamps, underground half-night districts .....	281
	<hr/> 28,489

## Cost of Operating and Maintaining Street Lamps

The cost of operating and maintaining the various types of street lamps is at the following rates per lamp per year:

### GAS LAMPS

Boulevard type incandescent mantle lamps, including supply of gas.....	\$25.40
Ornamental type incandescent mantle lamps, including supply of gas.....	27.27
Two-burner (St. Louis type) incandescent mantle lamps, including supply of gas....	37.27



TYPE OF 6.6-AMPERE WHITE WAY ARC LAMP AND STANDARD USED IN BALTIMORE



ORNAMENTAL GAS LAMPS USED IN BALTIMORE

Gas consumed by the pilot or automatic lighting devices during daylight hours is charged at the secondary rate of 70 cents per 1,000 cubic feet, as specified in the contract.

The cost of service connections from the main in the street to the street lamp, in accordance with the specifications, is \$18 each for material and labor, it being understood that the city will also pay for the improved pavement charges. For such services from the main to the curb only, the price is \$13 each, and for such services from mains in sidewalk to lamp, \$8 each.

Lighting Alleys

A total of 398 additional lamps were placed in service during 1922 for lighting dark alleys throughout the city. All the lamps installed in several alleys in a city block are fed from a primary pole which has been connected up with the underground electric service from the main thoroughfare. This system has reduced the cost to the Electrical Commission for labor and material, as it has been the means of eliminating the necessity of laying conduits

in the alleys, as well as effecting a saving in the maintenance of these lamps.

Night Inspection

For the purpose of keeping a strict supervision over the lighting service to see that the standard of light required by the terms of the contract is maintained during the hours of burning and to report any neglect on the part of the contractors which may result in defective lamp service, nightly inspections are maintained by the general inspectors and a report is made to the Department each morning as to lamps found defective or faulty in their respective districts. All such defects or outages are charged to the several companies, and the amount representing such defections or outages is deducted from the monthly bills of the contractors.

The prices quoted below on electric lamps are based on the present prices charged by the Electrical Commission for duct rental, and in the event of any change in the duct rental, there will be a charge of \$1.40 per lamp for each 1 cent change in duct rental per foot.

ELECTRIC LAMPS

Arc Lamps	Old City		Half-Night Under-ground	New Annex	
	Under-ground	Over-head		Under-ground	Over-head
White Way arc lamps 6.6-ampere.....	\$110.00		\$102.00		
Series arc lamps, 4-ampere .....	90.00	\$75.00		\$96.00	\$81.00
Maintenance of White Way arcs.....	2.00		2.00		
Incandescent Lamps					
40 C.P. multiple lamps .....	34.00				
40 C.P. series (radial reflectors).....	38.00	22.55			29.25
60 C.P. series (radial reflectors).....	43.75	25.30			32.00
200 C.P. series (Balco fixtures).....	57.00	44.50		61.00	47.00
400 C.P. series (Balco fixtures).....	75.00	56.00		80.00	66.00
1000 C.P. series (Balco fixtures).....	105.00	90.00			

The cost of electric current for use in municipal buildings and on the various bridges, squares, markets, etc., maintained by the Department of Lamps and Lighting is  $5\frac{1}{4}$  cents per kw. hr.

The city pays for all gas for street lamps located along the gas and electric companies' mains at the rate of \$7.97 per lamp per year, not exceeding  $2\frac{1}{4}$  cubic feet of gas per lamp per hour and burning not more than 4,000 hours per year. For all gas

consumed in excess of  $2\frac{1}{4}$  cubic feet per lamp per hour, the rate is 70 cents per 1,000 cubic feet for such excess. Should the average consumption of gas exceed 3 cubic feet per hour for each boulevard type of lamp and 4 cubic feet per hour for each ornamental type of lamp, such excess is charged to the American Street Lighting Company in accordance with the terms of the contract between the city and the company.

## Sewage Disposal in the Small Community

By W. C. Hirn

Michigan State Department of Health

**S**EWAGE disposal in the small community includes the general sewerage problem in the small community. Frequently this is a perplexing problem, involving local politics, law, economics and engineering, and too often it is not given the careful, broad-minded consideration it deserves.

Not so many years ago sewerage systems were common only in the more densely populated sections of the larger cities, and families living in more sparsely settled communities and in country homes knew very little of the protection and conveniences afforded by sanitary plumbing and methods of disposing of liquid waste safely and economically. Within my experience in engineering work, I was once employed in the construction of sewers which comprised the first attempt at a complete system for a city of 25,000 inhabitants. As could be expected, this city was at the time a hotbed of malaria, yellow fever.

dysentery, typhoid fever and all the diseases which are likely to result from the lack of sewerage. Such conditions as these have rapidly disappeared during the last two or three decades, and now most incorporated communities with a population over 2,000

have more or less complete sanitary sewerage systems and we are coming to consider homes and small communities and isolated farm homes as incomplete without sanitary plumbing and means for disposing of liquid waste safely and conveniently.

Protection of health is, of course, the most vital thing to consider when thinking of the necessity for sewer-

age. If the money which has been spent for sewerage had given us nothing more than health protection, we should have received more than the cost. Typhoid fever is not by any means the only disease which results from unsanitary conditions, but since it is a reportable disease in nearly all states, it is to-day taken as an index to sanitary condi-

### The Problem

"When all sides of the question are considered, we find that sewerage in the small community is really a problem that deserves very careful consideration and that the local governing body should spare no reasonable amount of time or expense to have the plans carefully executed and the construction work efficiently managed. It seems difficult to think of a surer way of getting into expensive difficulties than to have the designing of the first sewerage system in a community placed in inexperienced, incompetent hands and have the construction supervised by some local ne'er-do-well. Such procedure always brings trouble."

tions. In Michigan, typhoid fever was more than three times as prevalent in 1900 as in 1921, and there is no doubt that more careful disposal of sewage in recent years has been one of the important factors effecting this improvement in health conditions. Improved water-supplies have, however, been a more important cause.

#### **Education Needed in Small Communities**

The health worker in the small community often finds interest lagging in the proper disposal of sewage. He is called upon again and again to abate nuisances resulting from improper drainage and frequently finds very unhealthful conditions which can be remedied only by the construction of sewers. Such circumstances require some tactful, but energetic, educational and publicity work. As soon as people in a community learn that sewers are really necessary for the protection of the health of the community, and a popular demand is built up for such necessities, they can be procured. The health worker has a big job as a teacher, and when he neglects his opportunity of being an educator in sanitation, he is neglecting one of his most important duties. No one else in the community knows as much about conditions affecting public health as he does, and the community is depending upon him to keep them free from unhealthful conditions. He must make the public look at public health matters in the proper light, or fail at his job.

Unguided public opinion unfortunately usually favors the expenditure of public funds for improvements that show, such as pavements, boulevard lights and parks. Such improvements are, of course, desirable and necessary, and naturally appeal to everyone, but an adequate sewerage system is certainly needed first. Placing surface improvements on streets before good, serviceable sewers are in the streets is obviously bad management.

A community should not be satisfied with some sewers that work fairly well most of the time. A complete, adequate sewerage system which serves the entire business and residence section and can be extended to sections which are likely to develop is essential for the proper growth of the community. Such a system would require that municipal authorities, including the health officers, must take a broad-minded view of

the question. Many of our municipalities have sewerage systems that have grown up in a haphazard fashion without any particular plans and are a constant source of annoyance and danger. Such lack of planning practically always results in expensive mistakes. As soon as a sewerage system is considered feasible in an incorporated community, the public authorities should secure the services of some person with broad experience in municipal engineering work to study the problems and to work out plans for an adequate system. The serious mistake of employing unqualified persons to design and supervise such work is made all too frequently.

The best advice procurable will cost only a small fraction of the total cost of the system, and economical design will always save many times its cost. A prominent engineer who has designed and supervised millions of dollars' worth of work both in small communities and in large cities, has often said that he considers engineering work in the small community much more difficult than in the larger city. When we give this a little consideration, it can be easily understood. The larger cities have been working with this problem for years and have worked out plans and policies, and the persons who take an active interest in public affairs have learned some of the fundamental principles required in planning such work. The smaller community has this experience to gain and the organization work mostly to do. Also, in the larger city property is more valuable and more funds are available from taxpayers to finance such work. When all sides of the question are considered, we find that sewerage in the small community is really a problem that deserves very careful consideration and that the local governing body should spare no reasonable amount of time or expense to have the plans carefully executed and the construction work efficiently managed. A good sewerage system is one that after being built requires only some routine attention for maintenance, but a poor one is a constant source of danger, nuisance, annoyance, and expense. It seems difficult to think of a surer way of getting into expensive difficulties than to have the designing of the first sewerage system in a community placed in inexperienced, incompetent hands and have the construction supervised by some local

ne'er-do-well. Such procedure always brings trouble. Unfortunately, this happens too often, and anyone who has had very much experience in municipal engineering work can recall many cases.

Most states require that complete plans of sewerage systems be filed with the state department of health. When such plans are received by the state department of health, they are examined by the engineering bureau to see if the system as designed may cause a nuisance or danger to public health. If any suggestions can be made to otherwise improve the designs for economy or efficiency, such suggestions are usually offered, and especially if requested by local officials.

When a sewerage system is contemplated for a community, one of the first questions that must be decided upon is whether one system should be designed to care for only the liquid wastes from residences, business houses and industries, commonly sanitary sewage, and another system for surface water from rains, or whether one system should be built for all purposes. The proper answer to this question is much more difficult than might seem on first thought. A careful study of the situation from a sanitary and economic standpoint should certainly be made. Each community presents a different problem. The size and location of the stream or other body of water receiving the sewage, what use is made of this stream or body of water below the community, the slope of land within the area to be sewered, density of population, probable future growth, and other condi-

tions must be considered in order to arrive at an economic conclusion. Sewage purification, either immediately or in the future, must be one of the factors which enter into the problem.

The necessity for sewage purification is rapidly becoming more acute, since our population and industries are growing rapidly and we are attaining higher ideals of cleanliness. The expense of this is not prohibitive and should not be looked upon as such a burden as it is often considered. The cost of a sewage treatment plant for a city of 5,000 population where a relatively high degree of purification is required should not exceed \$30,000 if no unusual amount of industrial wastes must be cared for. Here again is a problem that must receive the attention of a thoroughly reliable, experienced engineer. The purification of sewage is decidedly a technical problem.

If we take a reasonable figure for the cost of a complete sewerage system for a town of 5,000 population, then add to this the cost of a sewage treatment plant which will purify the sewage to a degree suitable for almost any condition and take the total yearly cost of such a plant, including a sum sufficient to pay the cost of construction before the end of the life of the structure, the total amounts to less than \$4 per person per year. The protection afforded to health is worth much more than this amount, and the many other advantages gained are certainly worth the cost.

ACKNOWLEDGMENT.—Abstracted from *Public Health*, Michigan State Department of Health.

## The Waste of City Water by Defective Fixtures

ACCORDING to a bulletin issued by the Philadelphia Housing Association in June, 1923, on 2,335 properties distributed throughout certain insubstantial areas of Philadelphia, 105 leaking fixtures were found during two midwinter months. The water waste from these leaks as of the day of inspection was at the rate of 5,283,000 gallons per day. The water waste of 8 leaking fire plugs found during these two months was at a rate of 1,743,000 gallons per day as per flow on the day of inspection. A follow-up inspection found 39 of these fixtures not repaired and the loss from such continued leaks ap-

proximated 50,285,000 gallons. This water waste, measured by meter rates, entailed a loss of over \$6,500 for the two months' period. If the ratio of leaking fixtures prevailed throughout this city, the number of such defective fixtures would approximate 18,850. The amount of water waste resulting can only be conjectured, as the waste of midwinter would not prevail throughout the year. It may be assumed, however, that the loss is at all times sufficiently heavy to make a water-conservation program through repair of defective fixtures a profitable investment for the city of Philadelphia.

# The Tractive Resistance of Pavement Surfaces

By A. B. Cutter

City Engineer, Everett, Wash.

HAVING noticed more or less conflicting reports as to relative tractive resistance of rigid and non-rigid and gravel types of road surfaces, I arranged during the past winter for the making of exhaustive tests in the state of Washington, which is my home, and the neighboring states of Oregon and California, and I believe the result will be of public interest.

There being no snow in either of these Pacific Coast states, the test could be made during the winter months. Representing the three general types of road surfaces, sections of road were selected for the three types as follows:

1. Rigid type—Portland cement concrete
2. Non-rigid type—Warrenite-Bitulithic
3. Gravel or earth

The rules governing the comparative tests were as follows:

(a) Distance of each test, 100 miles of continuous operation. This is regarded as a distance sufficient to accurately record the gasoline consumption and produce a fair average. In some previously reported tests the mileages have been so small and so variable as to provide grave danger of inaccuracy.

(b) Make test on road surfaces that are in good condition but have had at least three years' practical use.

(c) In each state use the same automobile for comparative tests of the several types. In some of the several states, however, different machines were used for comparative tests.

(d) Uniform speed of not less than 20 nor more than 30 miles per hour.

(e) Record the date, location, speed and gasoline consumption on exactly 100 miles, as shown by speedometer on the car.

## WASHINGTON

<i>Road Surfaces</i>	<i>Bitulithic</i>	<i>Portland Cement Concrete</i>
Date of test.....	February 7, 1923	February 8, 1923
Location .....	Pierce County, Pacific Highway from DuPont to Country Club	Mountain road, being extension of Pacific Highway toward Rainier National Park
Air temperature .....	40 to 50° F.	40 to 50° F.
Tire inflation .....	60 lbs. rear, 55 lbs. front	60 lbs. rear, 55 lbs. front
Running time, 100 m.....	3 hrs. 45 min.	3 hrs. 45 min.
Average speed per hour.....	26.7 miles	26.7 miles
Gasoline consumed .....	5.5 gals.	5.5 gals.
Miles per gallon gasoline.....	18.2	18.2

## OREGON

<i>Road surfaces</i>	<i>Bitulithic</i>	<i>Portland Cement Concrete</i>	<i>Gravel</i>
Location .....	Base Line Road Columbia River Highway	Multnomah Hillsboro Road	Multnomah Co. east of Portland
Date .....	January 25, 1923	January 30, 1923	January 31, 1923
Weather .....	Cool-moderate wind	Cool-moderate wind	Cool and fair
Tire inflation .....	60 lbs. rear, 55 lbs. front	60 lbs. rear, 55 lbs. front	60 lbs. rear, 55 lbs. front
Running time, 100 miles.	4 hrs. 35 min.	4 hrs. 25 min.	4 hrs. 40 min.
Average speed per hour	21.9 miles	22.7 miles	21.4 miles
Gasoline consumed .....	5.25 gals.	5.25 gals.	7.0 gals.
Miles per gal. gasoline...	19.05	18.18	14.28

## CALIFORNIA

<i>Road surfaces</i>	<i>Warrenite-Bitulithic</i>	<i>Portland Cement Concrete</i>	<i>Gravel</i>
Location .....	Tulare County	Tulare County	Fresno-Raisin Road
Date .....	February 3, 1923	February 3, 1923	February 1, 1923
Speed .....	15 to 20 miles per hour	15 to 20 miles per hour	15 to 20 miles per hour
Weather .....	Fair	Fair	Fair
Temperature .....	45 to 75° F.	45 to 75° F.	55 to 70° F.
Gasoline consumption, 100 miles .....	7.1 gals.	7 gals.	7.8 gals.
Miles per gal. gasoline..	14.08	14.28	12.95

It was not practicable to make a test on a gravel road in the state of Washington, but exhaustive tests on the other surfaces were as shown in the table.

### Conclusions

1. Whatever reports may have been made or may be made in the future by parties interested to have one or another type of road show the most favorable gasoline consumption test, the above tests clearly show that:

(a) Between Portland cement concrete and Warrenite-Bitulithic roads tested under uniform conditions, there is practically no difference in gasoline consumption.

(b) On gravel or macadam roads in good condition, the gasoline consumption is from 10 to 35 per cent greater than on either Warrenite-Bitulithic or Portland cement concrete road surfaces.

(c) As the tests were made on road surfaces in good condition, the gasoline consumption would be relatively increased if the road surfaces are in bad condition.

(d) Under modern volume of traffic, good roads rapidly pay for themselves in economy of gasoline consumption, and the

same holds true in economy of tire and other automobile wear and tear. For example, given a road carrying an average of 2,000 vehicles per day, or 730,000 vehicles per year, and calculating from the Oregon test above, we find, with all the road surfaces in good condition, that:

On Warrenite-Bitulithic and Portland cement concrete roads the gasoline consumption is about  $(730,000 \div 19)$  38,400 gals. @ \$.30 = \$11,520 gasoline consumption per mile of road per annum;

On gravel roads  $(730,000 \div 14)$  52,000 gals. @ \$.30 = \$15,600 gasoline consumption per mile of road per annum.

Saving on gasoline above by hard-surface roads, 13,600 gals. @ \$.30 = \$4,080 per mile of road per annum.

2. The relative saving in wear and tear on tires and other automobile parts cannot be computed, but it doubtless is fully as great as the gasoline consumption. Add to this the saving in road maintenance cost (to say nothing of wear and tear on nerves of road users), and we have an object lesson of the economy of high-type roads and of keeping roads in good repair for economic use.

## The Effect of Discharge of Industrial Wastes Into Streams and Bodies of Water

HITHERTO the pollution of water-supplies has been considered very largely from the point of view of domestic sewage. This consideration has been quite natural, as the most important of water-borne diseases, typhoid fever, has its source in domestic sewage. With the growth of industries, however, the injurious effects of industrial wastes upon water-supplies and water-purification processes are becoming more and more important.

The most important effect of the discharge of industrial wastes into streams and bodies of water may be described very briefly as follows:

**Nuisance.**—Industrial wastes of various kinds may be discharged into a stream or body of water in such proportion as to create a nuisance from foul odor due either to the wastes themselves or to the putrefaction of their organic matter following the exhaustion of the dissolved oxygen by the biochemical demand of the wastes.

**Fish Life.**—Fish life may be destroyed by the depletion of dissolved oxygen or by the discharge of acids, alkalis or other chemicals.

**Boating.**—The stream or body of water may be rendered so objectionable in appearance, due to color, turbidity, suspended matters, de-

posits or scum, as to make it unsuitable for boating and other pleasure purposes.

**Bathing.**—Even though not polluted to such an extent as to prevent boating, the waters may be entirely unfit for bathing.

**Cattle Watering.**—The presence of certain industrial wastes, though perhaps not noticeable, may render the water unfit for cattle.

**Industrial Process Water.**—Whether satisfactory from the above-mentioned points of view, or not, the presence of industrial wastes may seriously interfere with the use of the water for industrial process purposes, without prior treatment. Great economic loss is undoubtedly suffered in this way.

**Domestic Water-Supply.**—Even though satisfactory from other points of view, the waters may be rendered unsuitable or unsafe for domestic water-supply, without purification, and the extent of pollution may be so great as to interfere with the ordinary water purification processes or to actually render such processes incapable of producing a satisfactory water. It is with the effects of industrial wastes on domestic water-supply that this report has to deal.

—From the Report of the Committee on Industrial Wastes, American Water Works Association.



# The Sewage Treatment Problem from the Standpoint of Sludge

Abstract of Progress Report Presented to the American Society for Municipal Improvements

THE Progress Report presented by the Committee on the Disposal of Sludge to the American Society for Municipal Improvements summarizes in a helpful manner the conditions existing in the sewage treatment plants of the cities of the United States with populations of 25,000 and upwards, indicating the methods used and the results obtained from the standpoint of sludge. It also takes up the need of agricultural study and quantitative growing tests by soil and plant experts. The data are compiled from a questionnaire sent out to over 700 cities and towns in the United States.

## Cities of 100,000 or More Population

Most of the cities in this group have combined sewer systems, and have grit chambers, bar-screens and Imhoff tanks with the effluent treated on trickling filters. There are exceptions to this, but in this group the general tendency is as mentioned above. The suspended matter in the raw sewage varies from 60 parts per million to 460, averaging around 200 parts per million, while in the effluent applied to the trickling filters the suspended matter varies from 29 to 149, averaging about 72 parts per million. With the exception of Cleveland and Providence, practically all the cities making an air-dried sludge dump it on land. Cleveland dumps the liquid sludge into Lake Erie, and Providence dumps it at sea. Five of the cities run the sludge into lagoons, one plows some of the liquid sludge into the ground, and four discharge the sludge at flood into a river as opportunity offers. Two have actually tried heat-drying.

Seven cities report that some use is made of sludge by farmers, while three report that no use is made of it by farmers. Of the seven cities reporting that farmers do use the sludge, six say that the same farmers call for sludge year after year. Only three report any receipts for the sludge, and then only nominal amounts.

The sludge analyses reported, either Imhoff or settling-tank sludge, show low nitrogen, ranging from 1.25 to 3.3 per cent on a dry basis. The activated sludges reported have a much higher nitrogen content.

## Cities Between 25,000 to 100,000 Population

Most of the cities in this group have separate sewer systems, and have bar screens, Imhoff tanks and trickling filters, as mentioned for the group above 100,000. Few, however, have grit chambers. The suspended matter in the raw sewage varies from 110 to 389 parts per million, averaging 207. The effluent as applied to the trickling filters varies from 5 to 98 parts per million, averaging 62 parts per million. Most of the cities in this group air-dry the sludge and dump it, while Madison, Wis., disposes of it in lagoons, and Fresno, Mansfield, and Plainfield run the sludge out into the fields and plow it in. One city discharges it at flood into the river. None have tried heat drying. Eight cities report the use of the sludge by farmers, seven report partial use, and of these, five state that the same farmers come year after year for the sludge, but one city notes that the sludge is not used on the same land. Only one city reports any receipts for the sludge, and that one only \$2 per cubic yard. This is the highest rate of sale reported.

In the sludge analyses reported, the Imhoff and settling-tank sludges all show low nitrogen; ranging from 1.21 to 2.6 per cent on a dry basis. The electrolytic sludge from Allentown, Pa., is very low in nitrogen because of the lime used, and is even higher in fixed solids than the Worcester chemically precipitated sludge.

## Operating Data

The results of the inquiry show that the plants in the cities of 100,000 and upward in general have technical attention, and in most cases a chemist in charge, even though

money is not always available for continued or complete operation. In cities from 25,000 to 100,000 only six have any complete control. Among the most thoroughly operated plants appear Fitchburg and Plainfield. The rest may have some control by city officials, but not enough to keep any real operating data. One city frankly reports no funds available.

### Sludge Disposal

From the standpoint of sludge disposal and use, the very great preponderance of air-drying and dumping as a means of disposal is of note. Further, the lack of interest by farmers, and the general lack of income as yet from such disposal, are noteworthy. For this the low nitrogen content generally prevalent may be responsible. However, there is the possibility of lack of publicity. With suitable publicity, one of the smaller towns within 40 miles of Chicago has been selling its Imhoff sludge for several years for \$5 per load. Chemical precipitation sludge appears to have practically no value.

The obvious step necessary to interest the farmer in sludge is the development of a real yardstick of value. For this end the need of intelligent treatment on experi-

mental farms is urged. At the suggestion of T. Chalkley Hatton, the Secretary of the U. S. Department of Agriculture has been requested by various municipalities to allocate part of the budget of his department for a thorough investigation, trying sludges in different parts of the country, and in different soils. The experiment stations of the states of Illinois and Wisconsin have been urged by the Sanitary District of Chicago and the Milwaukee Sewerage Commission to cooperate. They have expressed a desire to do so within the limits of their resources. Further, the Sanitary District of Chicago is planning to undertake some experimental work in the vicinity of the truck farms around Chicago.

In order to determine all the elements of value, trials extending over several years will be needed. Such trials to be effective must necessarily be quantitative. To properly apply the fertilizer and learn its true value, such trials should be under the direction of trained agricultural experts who know what fertilizers and what amounts are requisite for the different trial crops. Dr. Schreiner, of the Bureau of Soil Fertility of the U. S. Department of Agriculture, recommends trial crops typical respectively of roots, grain, leaf and fruit.

## The Cost of Operating a Department of Streets

THE work of the Street Department of Oak Park, Ill., a city of 40,000, covers the repair and maintenance and cleaning of the street and alley pavements, removal of all household waste and garbage, care of trees, and maintenance and repair of the sewer system. Funds for the operation of the department are classified under five heads: vehicle tax fund, street and bridge fund, street department fund, garbage fund, and forestry fund. The equipment of the department includes:

- 29 horses
- 5 dump-wagons
- 4 reach wagons
- 2 double garbage carts
- 7 single garbage carts
- 1 pick-up street sweeper
- 1 sewer-cleaning machine
- 1 tree-spraying machine
- 1 mowing machine
- 2 5-yard dump-body motor trucks
- 1 steel riding snow-plow
- 1 auto snow-plow attachment

- 20 wooden snow-plows
- 1 plow
- 1 harrow
- 1 disc
- 1 10-inch roller
- 1 sprinkling cart
- 1 oil-distributing cart
- 1 oil-storage tank
- 1 Dodge roadster
- 1 ash conveyor
- 1 portable asphalt machine

The total expenditures for the Street Department for 1922 were \$129,874.36. All paved streets were cleaned at least twice a month from March 1 to December 1. Some of the more important streets were cleaned daily, a man being maintained there by the local business men's association, and a proportionate share of the expense being paid by the village. The cost of sweeping was \$8,611.18, the cost of removing dirt and leaves, \$9,245.65, and miscellaneous expenses, including supplies and repairs to

equipment, tools and equipment and superintendence, \$1,803.01.

About 12,766 cubic yards of dirt and leaves was removed at an average cost of \$1.461 per cubic yard. In all, 1,734 miles of streets was cleaned at an average cost of \$11.332 per mile. Estimating the average width cleaned as 12 feet, the total number of square yards swept was 11,990,592, or an average cost of \$.00164 per square yard.

During the year a total of 22,789 cubic yards of ashes was collected at a cost of

\$18,509.22, or an average cost of 81.2 cents per cubic yard. Rubbish amounted to 28,353 cubic yards and cost \$20,478.28, or 72.2 cents per cubic yard.

The total cost of cleaning sewers for 1922 was \$1,208.38. This includes general examinations, rodding, flushing, etc. In all, 8,135 feet of sewers was cleaned by machine during the year. Also 871 street catch-basins were cleaned, from which 575 cubic yards of dirt was removed at a cost of \$1,155.68, an average of \$1.327 per basin.

## Progressive Construction from Graded Roadway to Hard-Surface Road

A Helpful, Practical Scheme for County or State Roads Outlined in Progress Report of the Committee on Subgrade and Its Relation to Road Surfacing and Traffic, American Road Builders' Association

**I**N the construction of a road system, it is possible in many cases to build a progressive type road, which is another way of stabilizing successive subgrades and eventually arriving at the hard-surface pavement. The first step is the construction of a graded road, which is maintained as such until settlement is complete or until increasing traffic and high cost of maintenance indicate necessity for the next higher type. The nature of the soil should determine the character and extent of the drainage system. With a drainable pervious material one system might prove adequate, whereas the same system in an impervious soil would be absolutely worthless.

The next step is the selected soil road, in which the surface of the graded road is covered with selected soil, such as sand clay, top soil or gravel, thus stabilizing the surface and providing material of higher bearing value. This surface is then maintained as a subgrade highway until maintenance becomes heavy or traffic demands a hard-surface road. In the construction of the hard surface on this road, selected material of the underlying selected soil

road, which has been serving as a subgrade highway, now becomes a subgrade stabilizer for the hard-surface road, greatly increasing its bearing power and assuring an adequate subgrade.

### Progressive Roads Help Pay-as-You-Go Policy

In the progressive type of road, all steps taken in its construction include the utilization of the previous construction in transforming to the next higher type, and each step may be considered as a subgrade for the next type. This often justifies the expenditure of sufficient money to select soils of a character that may with proper maintenance be used as a surface material until such time as the traffic demands or the cost of maintenance makes it necessary to construct the next higher type. These selected soil roads may be called subgrade highways and many times are the economic solution for road construction for a large portion of a state or county system. The selected material on these subgrade highways may be natural or artificial sand clay, topsoil, gravel, or a selected earth, preferably from the immediate neighborhood.

#### STUDY OF STREET-LIGHTING PRACTISE

The study of street-lighting service undertaken by the U. S. Bureau of Standards several years ago but suspended in war time has been actively resumed. This study will cover street-lighting in all its phases—gas, electric and other special types. The problems of design of street-lighting systems from the illuminating standpoint, the distribution of gas and electricity for street lighting, methods of operation and maintenance, and the technical and engineering features of contracts for street-lighting service will be included. The results of this and other studies on the subject will be presented, if possible, in the form of a publication.

# Putting the City on the Airline

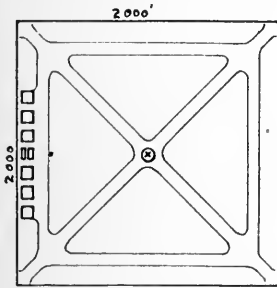
Why Your City Needs an Air Terminal—How It Can Be Created—Selecting the Site—Keeping Down Cost by Planning Ahead While Providing Essentials

By Archibald Black

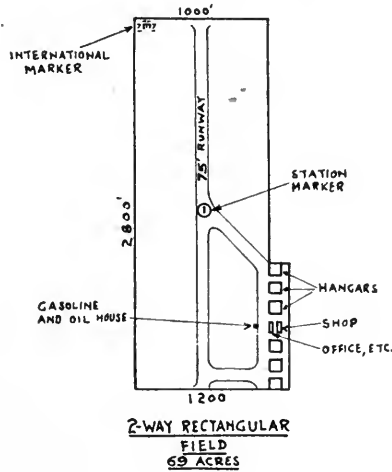
Consulting Engineer, Garden City, N. Y.

THE modest proportions of aerial transportation at the moment should not be allowed to mislead municipal authorities into the error of waiting for further development before making some provision for its reception. It seems safe

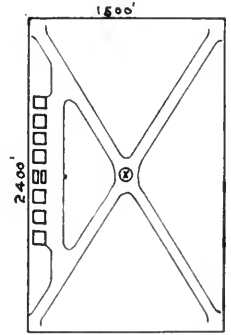
to predict that no means of transportation which is so unbelievably fast can long remain in the state of limited use of the airplane to-day. Aviation in itself is rather an old story,—about nineteen years old, to be more specific,—but commercial aviation



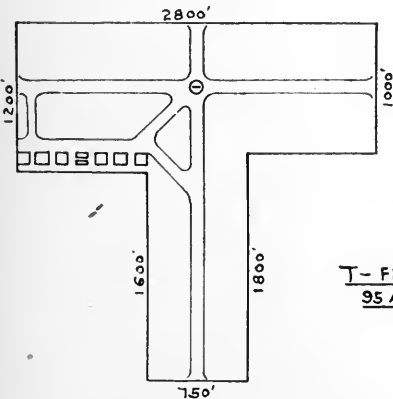
**SQUARE FIELD**  
92 ACRES



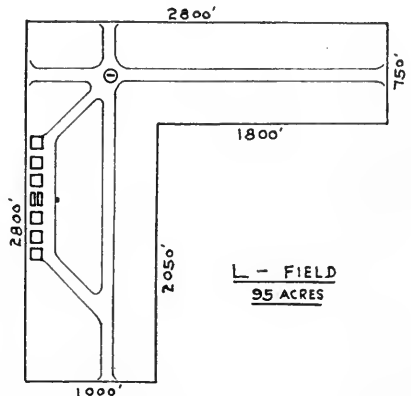
**2-WAY RECTANGULAR**  
FIELD  
69 ACRES



**4-WAY RECTANGULAR**  
FIELD  
83 ACRES



**T - FIELD**  
95 ACRES



**L - FIELD**  
95 ACRES



FIG. 1.—SEVERAL POSSIBLE ARRANGEMENTS OF AIR TERMINALS FOR LAND TYPES OF AIRPLANES, ON DIFFERENT SHAPES OF PLOTS

is another matter. This development is only about four years old, and it is only within the last three years that real commercial airplanes have been developed. Consequently we have only had sufficient experience in this latest branch to find out three things: first, that commercial aviation can be reconciled with safety; second, that it can be made to pay if properly managed; third, that the operating cost falls rapidly with increase in the traffic. We are on the verge of really substantial developments in commercial aviation, and the next few years will undoubtedly see great extension of the few lines which are operating to-day. The time for civic authorities to recognize these facts is *now*.

### Many Cities Have Only One Air Terminal Site

The foregoing brings us to the crux of the matter. Given any development of importance in transportation, it goes without saying that every city is interested in getting its share in the future application of this means. Consequently, every city must be interested in the possibility of being an important station on future airlines. It happens, however, that many of our cities have only one really suitable site for an air terminal. If the city itself neglects development of this site, it will undoubtedly be taken up by the first airline to serve that city. This airline being operated for profit, its executives will be much more interested in keeping other airlines out of that city than in getting them in. If they have already obtained control of the one best site, it seems certain that the result will be discouragement of any other line which might otherwise decide to operate into the city. The only insurance against such happening is the provision of a municipal air terminal on this one best site while airline developments are still pending. Such provision will also have the very important advantage of encouraging the extension into that city of airlines which might otherwise be operated to some other city which has not shown similar foresight.

### The Creation of a Municipal Air Terminal

The appointment of a Municipal Air Terminal Commission or similar body should be the first step to be taken after any city has decided either to create an air terminal or to investigate this possibility.

This body should be authorized to study each of the possible sites for such terminal and to report upon those which are most suitable, showing how they could be arranged and what this would cost. It is very desirable that every possible site be given consideration and that a list of the apparently suitable ones be first prepared. Some rough plans of possible arrangements of these should be prepared in order that the final decision on the selection of the site can be more intelligently rendered. It is also advisable that a landing-field specialist be consulted and his advice obtained before the site is actually purchased.

In the selection of sites there are several view-points to be considered, and it is very important that these be properly balanced. The main points to be considered might be listed as below:

1. Meteorology, local and general
2. Orientation of site
3. Location with reference to other stations
4. Types of aircraft to be provided for
5. Expansion provisions and extent of immediate use
6. Soil and drainage
7. Transportation
8. Communication
9. Cost of property and of construction
10. Road and runway construction
11. Building arrangement and construction
12. Fire protection
13. Insurance requirements
14. Equipment, including markers

In the preparation of detailed layouts of stations, these main points will require division into about 30 or more distinct sub-heads, each of which must be considered.

### Selection of the Site

The site of the air terminal should, preferably, permit provision for both land and water types of aircraft. For land types of airplanes a plot of ground, level to within 2 per cent and, if possible, to within 1 per cent, is required. This may be square, oblong, T, L, or other shape, the square being preferable. The size required will depend upon the lengths of the runways, described later, but in most cases a square plot of 2,000 by 2,000 feet is satisfactory. A square plot of 1,800 by 1,800 feet can be used and, to a limited extent, one of 1,500 by 1,500 feet, but the latter sizes are not recommended, as they greatly increase risk of accident. This matter of size is also



It is advisable to surface the most-used portions of the runways with gravel, cinders, or other available material unless the soil drains very well. The ends of runways should be kept clear of obstructions, such as trees, buildings, towers, etc., which might either interfere with airplanes taking off and landing or cause troublesome local wind currents. All ditches should be filled up to the level of the field, and any mounds, tree stumps, or similar obstructions should be removed.

The hangars, gasoline house, and all other buildings should be well spaced to reduce the fire hazard, and some suitable fire-extinguishing apparatus should be provided for. On account of the oil and gasoline fire hazard, preference should be given to apparatus of the foam type where it can be guarded against freezing.

#### Immediate Requirements

The immediate requirements will usually be very modest. It should be considered, therefore, that the important point is to obtain the site and prepare plans for its eventual development along comprehensive lines. The field should then be put into sufficiently good condition for landing use and only such equipment in the way of buildings, etc., installed as may be required to fill immediate needs. In many cases, one hangar, some means of storing gasoline and oil, a wind indicator, telephone connection and a location marker will be all that are necessary in the way of equipment.

Figure 3 shows the details of station and international or location markers, the latter being so called because of their adoption by the International Air Convention. The station marker is used to facilitate identification of the station from the air and, in the case of landing fields, to indicate the direction of the runways, these being shown by the lines inside of the circle. The international marker is provided to enable

identification of the locality from the air. The dot and open sided rectangle represent the position of the town or station in the quadrangle formed by the lines of latitude and longitude, and the figures on each side represent the latitude and longitude of the south and west sides of this quadrangle. Markers of either type can be constructed by removing soil, filling with broken stone or other material, to about 4 to 6 inches, rolling and whitewashing.

#### The Importance of Planning Ahead

If plans for the eventual development are prepared in the beginning, this immediately essential equipment can be permanently installed and added to from time to time as may be required. In this manner, the completely developed terminal will follow a comprehensive plan and yet the original investment may be very little.

The chief point which city officials should bear in mind is the importance of taking steps as soon as possible to make some provision for aircraft even if the funds necessarily limit development at the start. Apart from purely selfish civic interest, there is the broader interest of national defense; numerous air terminals throughout the country would be of incalculable value to the Air Service and Navy in defense of the country in case of war.

It might also be well to express a word of caution against attaching too great importance to the advice of some local expert who has not given special study to air terminal work and who is probably entirely unfamiliar with recent commercial aircraft developments. It is more advisable either to obtain the services of a specialist or to appoint, as a substitute, a well-rounded committee to do the planning. Any other policy may prove surprisingly expensive at some later date and the cost may be counted in human lives as well as in dollars.

### The Need of City Plans

THE enormous losses in human happiness and in money which have resulted from lack of city plans which take into account the conditions of modern life, need little proof. The lack of adequate open spaces, of playgrounds and parks; the congestion of streets, the misery of tenement life and its repercussions upon

each new generation, are an untold charge against our American life. Our cities do not produce their full contribution to the sinews of American life and national character. The moral and social issues can only be solved by a new conception of city building.

HERBERT HOOVER.



# Cleaning the Streets of Birmingham, Alabama

Flushing and Hand Cleaning Keep Streets in Prime Condition

**B**IRMINGHAM'S 150 miles of paved streets are kept clean and sprinkled at a cost of \$35,000 per year, under the direction of the Street Cleaning Department. For cleaning, two modern street flushers are used, followed by crews of men with brushes, shovels and carts to take up the larger trash from the gutters, into which it is washed by the flusher. Compressed-air pressure in the flusher drives a stream of water across the street with great force, washing all of the trash into the gutter. Small trash is removed by the gutter, and the larger trash is taken up by the men and carts.

The flushers used by the city of Birmingham were designed and made locally and are mounted on White truck bodies. The down-town streets are flushed and swept every night, and all paved residence streets are flushed and swept once a week. Both flushers and crews work during the day and sometimes also work at night. The city is divided into six sections, which are taken in regular rotation.

In addition to this street cleaning equipment, the city has two men who operate small push-carts and clean up trash that has dropped throughout the day in the business part of the city.

The two street flushers cost about \$800 a month to operate, according to the Commissioners' books. This includes the water used, gasoline and oil, the salary of the operator, and the salaries of the sweeping crews which follow the flusher. Every month the pay-roll for cleaning alone averages \$2,000. It costs slightly in excess of \$120 a month to operate the two push-carts, which work both week-days and Sundays. The rest of the appropriation, or about \$7,000, is used for street sprinkling.

None of the appropriation for street cleaning is used on unpaved streets, except a small amount for sprinkling. The Department of Sewers and Unpaved Streets handles the cleaning of the unpaved streets. This is done occasionally by sewer crews which keep the water channels open and clean. In the case of the unpaved thorough-



**BIRMINGHAM'S WHITE WINGS KEEP THE GUTTERS OF THE BUSINESS DISTRICT CLEAN, WHILE MOTOR EQUIPMENT ATTENDS TO THE STREETS**

fares, the cleaning is left, for the most part, to property owners, who under the law are responsible for keeping the streets in good condition.

To every mile of paved street in the city approximately \$196 per year is allowed for cleaning purposes, or less than \$1 a day. The hand cleaning facilities in Birmingham are not as fully developed as they might be as regards cleanliness and efficiency, but they do manage to reach all sections of the business district every day, and all residence sections at least once a week.

It falls to the lot of the unpaved street crews to give one day each week to sweeping all alleys in the residence sections of the city. The alleys in the business section are swept each day, the same as the street.

There is a crew of 24 men in the Street

Cleaning Department. They are paid \$2 a day for cleaning, making \$48 a week for the cleaning of alleys in the residence section, and \$48 per week for the cleaning of paved residence streets. This sum covers only the wages of the hand cleaners, not including any additional expenses.

The only two white wings in the city work in the business section. Their wages are \$2 a day for cleaning up and picking up after careless citizens. At given points in the city these hand cleaners meet the dump-wagons and deliver their full trash bags to them to be emptied, receiving others with which to finish the day's work. Thus the city spends \$4 per day, or \$28 per week, on the wages of the hand cleaners or white wings for exclusive service in the business section.

## Developments in the Use of Local Materials for Road Work

By Vernon M. Peirce

District Engineer, U. S. Bureau of Public Roads

THE principal materials used in highway construction, other than strictly manufactured products, are broken stone, gravel and sand. Almost every type of highway which has been devised may be made to utilize one or more of these products for the greater part of the pavement. However, the material should meet certain rather definite requirements for the various types of construction. The problem, therefore, presents itself of selecting a type of construction that will utilize to the best advantage the characteristics of the particular local material that is most available. By this it is not meant that suitability of type should in any case be sacrificed in order to use local material, for in most cases it will be found that if all prejudices are cast aside, some type and design of highway may be found which will utilize a considerable proportion of local material and at the same time will prove adequate to meet local conditions of traffic, climate, etc.

Local rock, with comparatively few exceptions, will prove satisfactory for at least some portion of the highway. Frequently,

however, broken stone is imported from a considerable distance, either because the local product is not well suited for the type of construction selected, or because no crushing and screening plant is operating in the vicinity of the work. In the former case a different type of construction equally well suited to meet local needs may be the solution, and in the latter, encouragement to contractors to open up the local deposits and, if necessary, to operate with portable equipment. In general, rock of a slaty or schistose structure and friable rock of a purely siliceous nature are not adaptable for highway work. Almost all other types, from the hard, dense trap to the soft, coralline rock, will prove serviceable when properly used.

When the water-bound or surface-treated macadam is a sufficiently high type to adopt, the gneisses, sandstones, quartzites and very soft limestones should be used only in the foundation course, the first three because of their lack of cementing value, and the limestone because of its poor wearing qualities. When such rocks are the only available local material, however, they may

be used in the construction of a bituminous macadam wearing course at a cost frequently less than would be incurred by importing a rock suitable for water-bound construction. Thus a higher type of construction would be secured with either a saving or no additional expense. The bituminous macadam is also well adapted for utilization of rock which is not sufficiently tough or wear-resistant to be used either in bituminous concrete or portland cement concrete pavements. Many of the sandstones fall in this class. The very soft coralline rock is unsuitable for any type of wearing course except bituminous macadam, although it makes an excellent foundation.

Many rocks unsuited for use in most wearing courses may be perfectly satisfactory for foundations of the water-bound, bituminous macadam, bituminous concrete or other types of pavements. Where they are so used, the selection of a wearing course constructed with some other material than rock, may be advisable. Thus, if a suitable grade of sand is locally available, a sheet asphalt wearing course may be selected, or perhaps brick from some nearby plant may be used to advantage.

Local gravel is a material which may often be used for foundation purposes with economy and satisfaction, in direct competition with local rock, and in certain sections of the country it is the only available coarse aggregate product. Clayey gravels are perhaps the most unsatisfactory for use except in the water-bound or surface-treated types of construction. A clayey gravel may, however, frequently be washed at a relatively low cost so as to make it suitable for the construction of concrete

foundations. The sandy gravels make excellent coarse aggregate for both portland cement concrete and asphaltic concrete bases, and if composed of hard, durable pebbles are well adapted for the coarse graded aggregate type of bituminous concrete wearing course; in fact, such a wearing course may be made to successfully utilize a wider range of local material than any other high type of construction.

### The Use of Sand

Sand serves as a fine aggregate material for both hydraulic cement concrete and bituminous concrete foundations and pavements, and as a cushion course for brick and stone block pavements. There are, however, only two types of wearing course in which it constitutes the bulk of the structure; these are the sheet asphalt and fine graded aggregate asphaltic concrete pavements. Sands containing a high percentage of clay or mica are unsuited for highway use except perhaps in the treatment of subgrades or the construction of sand-clay roads. A high percentage of organic matter also

### Worn-out Roads Are Local Material

No discussion of the utilization of local material for highway construction would be complete without mention of existing roads which have outlived their period of usefulness. In most cases the bulk material remaining in such roads may be utilized in the construction of new roads as a part, at least, of the foundation for a new and frequently different type of wearing course. Indeed, it is seldom necessary to remove and replace with some other product the material already on the road. Every year millions of tons of such material, which, in the strictest sense, is local, becomes available for use in highway improvements. This is true irrespective of the type of old road, provided it has not been allowed to deteriorate to too great an extent, and the further utilization of such material whenever practicable becomes a matter of primary importance, not only to the conscientious engineer but to the tax-paying public. It is believed that many million dollars' worth of old local material from such sources should be utilized each year in the general highway program.

renders them unfit for use in portland cement concrete, but not for bituminous mixtures, as the organic matter is burned out when the material passes through the drier. Fortunately, however, in localities where sand is abundant, a careful survey of existing deposits will usually develop the fact that a product of almost any desired grading is obtainable. Concrete sands, which are relatively coarse and not subject to narrow grading limitations, are in general more readily obtainable than are sands for asphalt construction, which require a rather fine, carefully graded

product that must at the same time be practically free from particles which will pass a 200-mesh sieve. For the latter purpose, however, local material may frequently be found which can be satisfactorily used, even if by itself it would be unsuitable. Thus, proper admixture of two or more local sands will often produce a desired grading which no single deposit will meet.

In a sand and gravel country when a high type of construction may be demanded and the gravel is of inferior quality for use in the wearing course, an excellent combination may often be secured by laying a gravel concrete foundation with a sheet asphalt wearing course, thus using available local material to the best possible advantage without sacrificing the quality of the finished pavement.

There are some localities where sand is the only available local road material, notwithstanding which it may be quite practical to economically construct a high-class highway. Thus a considerable portion of the country along the South Atlantic coast has very little stone for road building, although it so happens that in that territory there is an abundance of sand. These particular localities are so situated that freight rates which govern the delivery of stone are prohibitive. A solution of this problem has been secured in the following manner by the construction of a hot mix asphalt sand road in the vicinity of Wilmington, N. C. First, a survey was made of sand deposits in the vicinity of the proposed road, and a product was selected which most closely approximated a sheet asphalt sand grading. A portable asphalt plant was then erected at the deposit for preparing the mix. The roadway was graded in the usual manner. Two-by-eight-inch cypress stringers were firmly staked along the sides as forms and were left in place to protect the edge of the road under traffic and to keep the foundation confined. The subgrade was thoroughly compacted and upon it was then placed a foundation course 3 inches thick after compaction of a mixture of sand with about  $7\frac{1}{2}$  per cent of asphalt cement of approximately 45 penetration. Upon this base a surface or wearing course having a compacted thickness of  $1\frac{1}{2}$  inches was then laid, composed of sand, mineral

filler and asphalt cement in such proportions as to approximate a standard sheet asphalt surface mixture. In this vicinity and under favorable conditions such a road can be constructed at less than \$1.25 per square yard and answers the problem of a low-cost road in an undeveloped section where hard-surfaced roads are necessary for the development of the country.

Deposits of marl are of frequent occurrence along the South Atlantic coast, and this material when locally available makes a most excellent foundation for a hard-surface wearing course. Within a few miles of the North Carolina road referred to above, a 1-inch wearing course of the sheet asphalt surface mixture has been placed on an 8-inch compacted marl base at a low cost and promises to be very satisfactory and to meet all needs for years to come.

In addition to natural deposits of available local road material, there are in many sections of the country considerable quantities of waste or by-products from industries which may be successfully used in road building with a large saving in comparison with other products, either of local origin or those that would have to be transported for considerable distances. Among such materials may be mentioned mine tailings, chats and slag. Mine tailings when crushed and screened to proper sizes may be used instead of broken stone in nearly all types of highways. Chats make an excellent grit product for fine graded aggregate asphaltic concrete. Slag may be successfully used in the construction of various types of wearing surfaces. In addition to the products previously discussed, mention may also be made of shells, cinders, waste from clay product plants, straw and ashes. Such materials are particularly serviceable for building a subbase course or improving the character of the natural subgrade material so that a superimposed highway surface of lighter design may be constructed than would otherwise be required. All these materials, if of local origin and judiciously used, tend to lower the first cost, and in many cases may also lower the cost of maintenance of the highway.

ACKNOWLEDGMENT.—From a paper read at the annual convention of the American Road Builders' Association, Chicago, 1923.

# The Hardness of American Municipal Water-Supplies

By W. D. Collins

Geological Survey, Department of the Interior, Washington, D. C.

OF the 105,700,000 people in the United States, 54,300,000 live in the 2,787 cities and towns of over 2,500 inhabitants, and of these 37,800,000 are in the 287 places of over 25,000 population. In order, then, to learn the chemical character of the water used by nearly 36 per cent of the total population of the United States, it is only necessary to consider the public water-supplies of these 287 cities. The results of such a survey are contained in a report\* which is now ready for distribution. This report gives analyses which represent the waters supplied in the 287 large cities and in 20 others added to make at least two cities for each state. Some single analyses serve to represent the water used in several cities, while for other cities several analyses are given. Even with several analyses, only an approximate estimate of the composition of the water at any time is possible for some cities because of the variations in the raw water and in the treatment applied.

\* U. S. Geological Survey Water-Supply Paper 496, "Industrial Utility of Public Water-Supplies in the United States."

TABLE 1

*Approximate Hardness as CaCO<sub>3</sub> of Water From Public Supplies*  
(Parts per Million)

	Average	Maximum	Minimum
Baltimore, Md.....	52	71	41
Boston, Mass. (Met. District) ..	10		
Buffalo, N. Y.....	109		
Chicago, Ill.; Milwaukee, Wis., and other cities using water from Lake Michigan .....	131		
Cincinnati, Ohio .....	97	130	72
Cleveland, Ohio .....	122		
Columbus, Ohio .....	109	210	61
Detroit, Mich. ....	96		
Indianapolis, Ind. ....	291		
Kansas City, Mo. ....	229	348	159
Los Angeles, Calif. ....		251	163
Minneapolis, Minn. ....	171		
Newark, N. J. ....	35	50	27
New Orleans, La. ....	50		
New York, N. Y. Croton supply .....	48		
Catskill supply .....	16		
Philadelphia, Pa. Delaware River .....	34	48	23
Schuylkill River .....	99	144	49
Pittsburgh, Pa. ....	66	120	29
Portland, Ore. ....	9		
Providence, R. I. ....	8		
San Francisco, Calif. ....		166	83
Seattle, Wash. ....	23	33	14
St. Louis, Mo. ....	104	145	80
Toledo, Ohio .....	218	278	141
Washington, D. C. ....	80	113	52

The main constituents of the dissolved mineral matter in the water of practically all the supplies are calcium, magnesium, bicarbonate, and sulphate. Calcium and magnesium cause the hardness of the waters; the quantities of bicarbonate and sulphate determine the proportions of carbonate and non-carbonate hardness. These terms correspond roughly to the older terms, temporary hardness and permanent hardness. In this discussion, hardness is reported in parts per million of calcium carbonate (CaCO<sub>3</sub>) equivalent to the calcium and magnesium in the waters.

Table 1 shows the hardness of water from the public supplies of 24 large cities. Several of these cities furnish water to other cities, and some supplies, like that of Chicago, are almost identical with the water used by a number of other cities not on the list. The total population represented by the results in Table 1 is nearly 22,000,000.

It is not possible to classify waters with reference to their hardness into groups that will be universally recognized as well chosen, but in the discussion of the supplies of large cities divisions have been made at 50 or 55, at 100 and at 200 parts per million. The waters with hardness of less than 55 parts per million have been called soft. The middle value in this group, 25, undoubtedly represent soft water. Some would consider water soft even if its hardness were 100 parts per million. It is, however, generally profitable for a commercial laundry to soften water with as much as 75 parts per million of hardness, and for many steam boiler plants the softening of such water is well worth while. In general household use, hardness from 50 to 100 parts per million is not noticed by most persons unless they have been using very soft water.

TABLE 2

*Number of Persons Using Water of Certain Degrees of Hardness  
from Large Public Supply-Systems*

Range of Hardness (Parts per Million)	Population (Thousands)		Total
	Surface Water	Ground Water	
1-55 .....	16,643	764	17,407
56-100 .....	5,294	326	5,620
101-200 .....	10,711	692	11,403
200+ .....	2,246	2,081	4,327
	34,894	3,863	38,757

The waters with from 100 to 200 parts per million of hardness are generally recognized as hard, and most persons would consider water with hardness much over 200 parts per million far from satisfactory for uses that are affected by hardness.

From the data for 307 cities, the average hardness of the water used by the inhabitants of the large cities has been calculated for each state and for the whole United States. The average hardness of the water from surface supplies used by about 35,000,000 persons in 234 cities is 85 parts per million; the average hardness of water from ground supplies used by about 4,000,000 persons in 73 cities is 225 parts per million; the average for the 39,000,000 persons in the 307 cities is 99 parts per million. The average for a state was calculated by multiplying the population of each large city by the hardness of the water and dividing the sum of these products by the sum of the populations.

The numbers of persons in the 307 cities who use water with hardness within certain ranges are given in Table 2. These figures show that the greater number of those living in large cities are not troubled seriously by hardness of water

from the public supplies. It is probable that a larger proportion of those in smaller cities and in rural communities are supplied with hard water.

The water of public supplies in the larger cities is generally soft in the states along the Atlantic Coast and on the Gulf of Mexico, east of Texas, except in Florida, where most of the water used for public supplies is decidedly hard. Soft water is generally supplied to cities in Oregon and Washington. In Idaho, Kentucky, Montana, Nevada, Pennsylvania and Tennessee, the average hardness of water from the large public supplies is between 56 and 100 parts per million. In all the other states the average hardness is more than 100 parts per million, and a large proportion of the cities use water with hardness of from 250 to 350 parts per million. The exceptions are the cities along the Great Lakes, which use water with from 100 to 130 parts per million, a small number of cities that obtain water from streams near their sources, and several cities where the supply is softened.

In general, the tendency in new installations of water-works is to pay more attention than formerly to the question of hardness. Several cities have recently abandoned well water for filtered surface water that is less hard, and the practise of softening in connection with the filtration of hard surface waters is steadily growing.

ACKNOWLEDGMENT.—From a paper presented before the Chemical and Bacteriological Section of the American Water Works Association at the Detroit convention, May 24, 1923.

## Sources of Water-Supply in Indiana

IN Indiana there are approximately 214 cities and towns having public water-supplies, 156 of which cities and towns receive water from wells having a depth of more than 50 feet, 8 cities and towns pump water from shallow wells having a depth of less than 50 feet, 11 cities and towns receive water from springs, and 40 cities and towns receive water from surface supplies, including rivers, lakes, ponds, etc., treated and untreated. The total water pumped by cities and towns in Indiana for public consumption is approximately 162,000,000 gallons

daily. Of this volume of water, 54,000,000 gallons daily is pumped from deep wells, 3,500,000 gallons from shallow wells, 4,000,000 gallons from springs, 98,000,000 gallons from streams, lakes or ponds, and the supply is either filtered or treated with chlorine; approximately 3,000,000 gallons from streams, lakes or ponds is untreated and delivered to the public in a questionable condition.

ACKNOWLEDGMENT.—From a paper read by L. A. Geupel, Director of Water and Sewage Department, Indiana State Board of Health, Indianapolis, Ind., before the Indiana County and Municipal Health Officers Association.

# Forward Steps in Municipal Affairs

## *A New Charter Which Enlists the Highest Citizenship in the City's Service*

JAMESTOWN, N. Y.—On June 1, 1923, there went into effect in this city a new charter which is believed to mark a long step forward in the direction of municipal progress. In the writer's opinion it embodies all the main advantages of commission-manager charters and eliminates their disadvantages. It provides a system which is more democratic than the manager form, in that it provides for a larger representative legislative body, and at the same time it fixes responsibility on the heads of departments.

Under the new charter three branches of the city government have special importance: one consisting of the Mayor and City Council, dealing exclusively with executive and legislative matters; one a Board of Public Welfare, having complete control over all administrative functions pertaining to health, hospital, charities, markets, municipal sanitary milk distribution, and general welfare; and the other a board in charge of all public utilities and public works. (It is proposed to add the police and fire branches to the Public Welfare Department later. Thus the city government can function along three distinct lines—legislative, humanitarian, and business, the approval of the City Council being required, of course, in the final determination of the budget and in the adoption of ordinances.)

The City Council is composed of twelve councilmen, one-half of whom are elected from the city at large and one-half from the six wards, one from each. Each voter has the right to vote for a majority of the members of the City Council, and all councilmen and the Mayor are elected at one time for a term of two years. The charter provides a method of election which, by eliminating minor elective offices, tends to focus public attention on the character of

the candidates who, when elected as Mayor and councilmen, will be charged with formulating municipal policies. In other words, all legislative officials are elected, and all administrative officials appointed. No partisan emblems or nominations are permitted. Any person nominated by petition containing at least 100 names is entitled to a place on the official ballot of the election. The primary being abolished, the municipal election becomes a citizens' rather than a partisan affair. It was Benjamin Harrison who said: "Partisan politics is a national necessity, but a municipal misfortune."

The Board of Public Welfare consists of the Mayor and nine members appointed by him and confirmed by the City Council. This Board is empowered to appoint a Superintendent of Health, a Superintendent of Hospital, a Superintendent of Charities, a Superintendent of Markets, etc.

The Board of Public Utilities consists of the Mayor and five members, one of whom is the Director of Public Works, who must be a qualified civil engineer. This Board is charged with the operation of water and lighting plants and such other utilities as the city may acquire from time to time.

Appointments to the Boards of Public Welfare and Public Utilities are required to be made according to the principle of majority and minority representation; thereby bringing into the service of the city, in an advisory and administrative capacity, a type of public-spirited citizens whose valuable services could not otherwise be obtained. There is always in every community a class of citizens who abhor entering into political contests for election, but who are nevertheless abundantly equipped to give gratuitously a high class of service in public matters. The charter provides that at least two members of the Welfare Board and one member of the Utilities Board must be of a different political faith from that of the Mayor. The



Council is represented on both boards, thus making for coordination and harmony of action.

Provision is made for a single-headed Department of Financial and Clerical Records under the direction of a Comptroller, appointed by the Mayor and confirmed by the Council, and a single-headed Department of Assessments appointed in the same manner. The Department of Assessments is subject to a Board of Review and Correction, consisting of the President of the Council and two councilmen named by him and of two persons named by the Mayor. This enables citizens who have grievances or complaints to make with reference to their assessments to have them reviewed and corrected by an independent board.

The new charter means enlarged powers to directing heads, less confusion as to responsibility, and more directness in management of administrative affairs. It provides a simplified form of government, which is always the easiest form for the people to control. The responsibility is fixed, the people themselves determining municipal policies through representatives on the Council, chosen by them; while all administrative work is performed by experts appointed by the Mayor and by the Welfare and Utilities Boards. All heads of departments not controlled by the Boards of Public Welfare and Public Utilities are appointed by the Mayor, subject to confirmation by the Council.

There is also a provision by which 10 per cent of the voters can invoke a referendum upon any question, the result of which becomes binding upon the municipal authorities.

Jamestown's new charter is the work of a charter committee in which all elements of the community were represented and whose members have studied the matter for a whole year. As with other charters, some compromises were necessary. It abolishes eighteen separate departments into which the city government was divided under the old charter. It amalgamates and coordinates all the functions of the city government into seven departments, and it is believed that this will make for efficiency and economy and greatly improved service.

The Board of Public Welfare, as appointed, comprises men and women who are members of the legal and medical professions and persons who have philanthropic,

humanitarian and social interests in civic affairs; on the Board of Public Utilities have been appointed men experienced in the management of large business and engineering enterprises; while the Common Council, being elective, naturally appeals to those who have political inclinations. Thus the city government as now constituted permits a blending of those qualities of citizenship which are essential to the success of municipal government, keeping in mind that the elements of human service and business efficiency are important factors in the administration of the modern city.

SAMUEL A. CARLSON,  
Mayor.

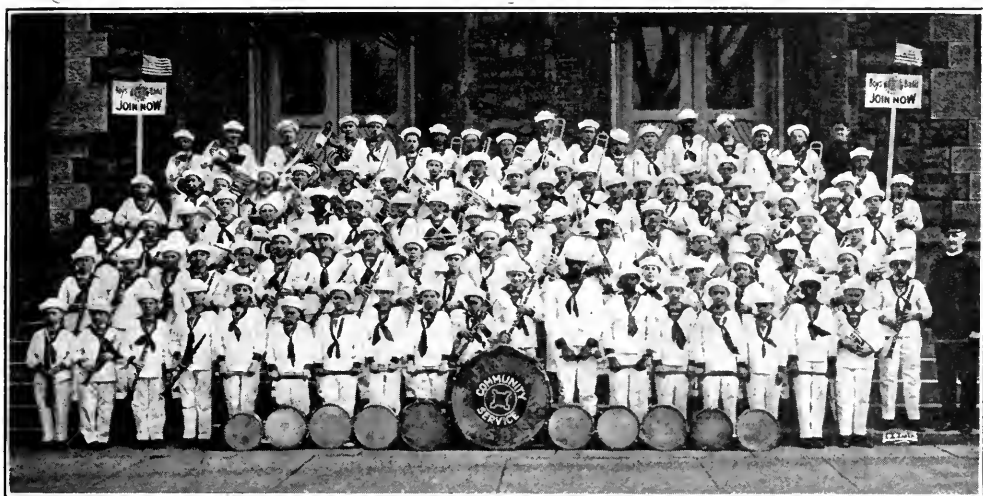
### *The Elmira Boys' Band*

ELMIRA, N. Y.—The Elmira Boys' Band was organized last September under the auspices of the Elmira Community Service. Seventy-three boys between the ages of nine and fourteen years registered, and practically 90 per cent of them did not know how to play any instrument.

The band gave its first concert November 1, three months after being organized, and from the proceeds of this concert uniforms were purchased. A little later the band made its first appearance on the street, at the head of the parade on November 11. This was the banner day for the band, as people talked about it for weeks and the papers carried prominent articles concerning it.

After the first concert, 52 new members joined the band, making a total of 125. The second concert was given on March 2, and several selections were rendered by the boys in a very pleasing manner. After this concert 50 new members made application for membership in the band, making a total of 175.

The band director arranged for each boy to rent his instrument for three months. At the end of the appointed time, practically all the boys owned their instruments. The band is self-supporting, as the money raised through concerts purchased the uniforms. The balance was put into a fund for the purchasing of music from time to time. Charges for lessons are very reasonable, thus giving all the boys an opportunity to join. A number of the boys pay for their lessons by working nights after school, and on Saturdays. Rehearsals are held every week in the State Armory, and the results



THE ELMIRA BOYS' BAND HAS 175 MEMBERS

accomplished show that a considerable amount of practising is done at home.

Several school orchestras have been formed in different parts of the city through the influence of our Boys' Band. We hope that it will in time be the means of having an orchestra in every local school. Several neighborhood orchestras have been formed and are the outgrowth of the band.

Since the band was organized in Elmira, the following cities and towns have organized bands under the same director and under the same regulations: Towanda, Pa.; Olean, N. Y.; and Hornell, N. Y.

Z. NESPOR,

Executive Secretary, Elmira Community Service.

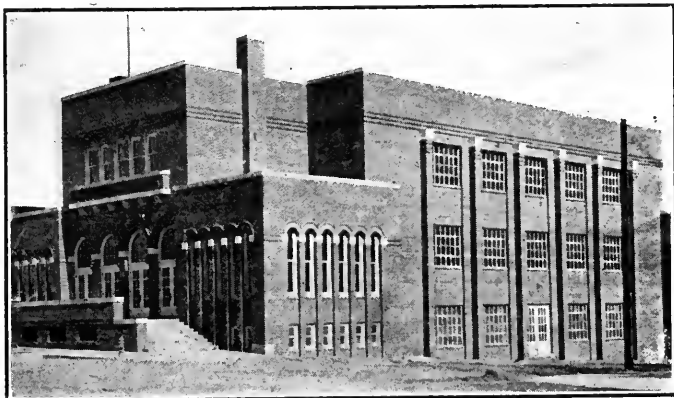
### *A New City Building for a Community of 1,467*

HARTINGTON, NEBR.—The new City Building in Hartington is 130 feet long and 75 feet wide at the front portion, and the auditorium proper is 60 feet wide. In one corner of the front part of the basement is the heating plant, and at the opposite side of the building a kitchen and storeroom. There is an entrance from the outside of the kitchen and also an entrance from the outside to the boiler room. Back of this there

is a gymnasium with a clear floor space of 40 by 70 feet and a ceiling 16 feet in the clear. The 40 feet in width is between the posts in the basement and between those and the outside wall there is ample room for spectators. To the rear of that are a shower-bath room and the fire apparatus.

On the first floor we have the Council Chamber in the corner, and on the opposite side of the building a ladies' rest room. Back of that is the main auditorium with a gallery extending clear around the room with 1,000 seats installed, and with room for possibly 500 chairs in case they should be needed, and back of that the stage, and dressing-rooms on either side.

The construction is fire-proof up to and including the floor of the auditorium. The building is of brick with cement-stone trim-



CITY BUILDING, HARTINGTON, NEBR.



with this apparatus 2,000 feet above sea-level. The whole cost of the appliance in place was \$250, about one-fourth the cost of pumps that would satisfactorily perform the same service.

J. E. TUPPER,  
City Engineer, Pomeroy, Wash.

### **Five-Year Financial and Improvement Program**

BLUEFIELD, W. VA.—Realizing that the time has passed when cities can spring up and thrive without any apparent reason, and that in the future the growth of cities will depend largely upon forethought and planning, the city administration of Bluefield several months ago began the preparation of a "Five-Year Financial and Improvement Program."

The principle has long been recognized that the private business which plans simply from one year to the next, or by the "hand to mouth" method, will surely have to give way sooner or later to a more far-sighted competitor. Planning for several years in advance in city business, however, is rather an innovation.

Bluefield's program, stated briefly, provides for a gradual reduction in taxes for a period of five years, and the voting of \$850,000 worth of bonds to defray the city's share of the various improvements contemplated. The improvements include the construction of twelve miles of pavements, sixteen miles of sewers, widening two of Bluefield's main thoroughfares, erecting a new municipal building, and acquiring land for parks and playgrounds.

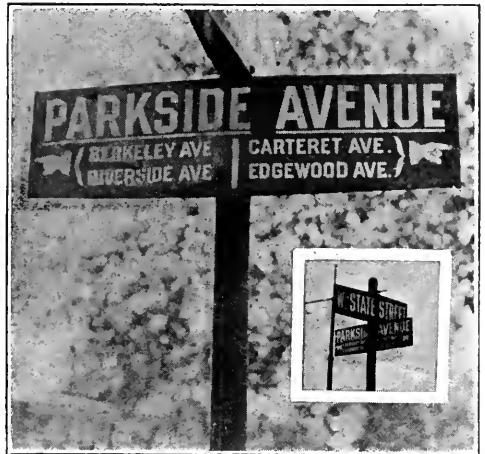
The project was presented early in January to the City Board of Directors (the City Council of Bluefield), and after several weeks' consideration by them and a few public meetings held for the purpose of getting an expression of public opinion on the proposition, the Board of Directors endorsed the program, with a few minor changes, and submitted the matter to a vote of the people in June. The result was a public endorsement of issuing the entire amount of bonds asked for, 62 per cent of the vote being favorable. While all the bonds were authorized at the one election and will all be issued within a three-year period, that does not mean that all the work contemplated will be completed in that period. The work may be done any time within five years, depending upon

the labor and material market, as well as the public necessity for the various improvements. The bonds will be in serial form, maturing in from two to thirty years.

CLARENCE E. RIDLEY,  
City Manager,

### **Neighborhood Street Signs**

TRENTON, N. J.—It is so easy for the city fathers to take refuge behind the old idea that everybody in town knows the name and location of all the streets and that signs are therefore unnecessary, that markers such as the one shown come as a welcome surprise, especially if one is a stranger who is looking for the home of a friend on a side street.



A SIGN WHICH GIVES THE NAMES OF INTERSECTING AND PARALLEL STREETS

The marker indicates not only the intersecting streets, but also those paralleling the main thoroughfare for two blocks in each direction. Finding an address is thus greatly simplified, and throughout the entire district so covered the street car conductors know the whole neighborhood, whereas in other parts of the town they learn merely the intersecting streets.

CHESTER LYNNDELLE.

"The golf links lie so near the mill  
That almost every day  
The laboring children can look out  
And see the men at play."  
—Sarah Claghorn,  
in "The Playground."

# The Connection Between Bad Housing and Bad Citizenship

Paragraphs and Picture from the 1923 Report of the California Commission of Immigration and Housing

**T**HERE is a vital connection between good housing and good citizenship.

There is a still more vital connection between bad housing and bad citizenship. An organization which works for the welfare of any group of people must necessarily take into consideration the conditions under which these people live, and, if these conditions are not satisfactory, must work for their improvement. And even more than in the case of our native-born groups is this true when the people in question are our immigrants.

The reason for this is not difficult to find. The two most important considerations which govern the immigrants in the selection of their homes are (1) nearness to people of their own nationality, and (2) low rents. The first is natural because of the loneliness of which most newcomers are victims and their desire to be able to talk to someone; the second no less natural on account of the instinctive tight hold which men, in the fact of an uncertain future, keep upon their small savings.

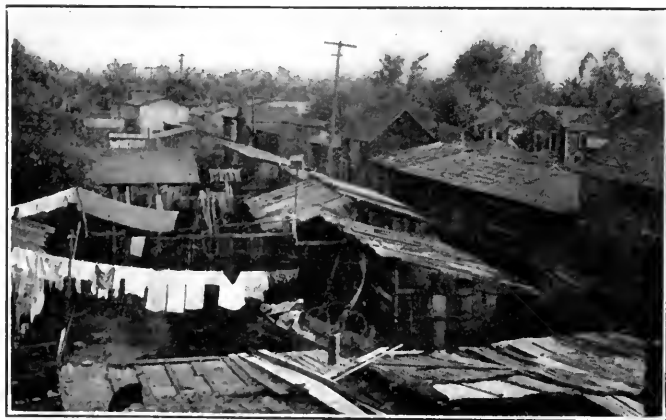
After years of immigration, congestion in these "foreign districts" becomes terrific. The section in which the foreign-born settle is usually in the old part of the city—

hemmed in on all sides so that expansion is possible only by the very slow process of replacement. So it means a "doubling up" and, later on, another "doubling up"—a crowding to which unscrupulous or careless landlords contribute in great measure.

Slum areas thus come into being, depressing and degrading their inhabitants physically, mentally, and morally. Growing slowly and almost imperceptibly, these sections are left wholly to themselves, all responsibility for them shrugged away with that most unjust of myths behind which many a landlord has taken refuge, the myth that "immigrants love dirt." Then, when it is too late for any quick remedy, communities suddenly awake to the menace of these areas and the realization that they can be done away with only after decades of strenuous work on the part of all interested agencies and an enlightened and helpful attitude on the part of the public at large.

Parenthetically, it should be mentioned that in this state another myth retards the work of improved housing, the belief—which is happily on the decline—that slum districts exist only in the large cities of the East and that California is free from

this evil, whereas almost the opposite is true. Almost every city, small as well as large, has a well-defined slum district, its "below the tracks," its "Southtown," its "Mexican village," its "Chinatown"—districts in which men, women and children are trying to make homes of tumbledown, leaky, draughty, unspeakably dirty tenements and shacks, and are failing miserably in the attempt, until the very instinct for home-making is hopelessly crushed.



**AND THIS IS IN CALIFORNIA!**

This "shack area," in addition to all its other evils, is a fire menace of the worst sort. Such districts are impossible under wise city planning

# Programs for Community Organization Meetings

A Method Used in New England to Graphically Present to the People Information on Conservation of Human Life and Public Resources

By E. B. Mero

Director, Citizens' Committee on Conservation, Boston, Mass.

**A**N ORGANIZED effort is being made in Boston to advance the welfare of people and neighborhoods through a unique type of standardized programs for public meetings. The same sort of work has been going on for several years, but not until now has it been placed on a definite basis with official state and city recognition and approval.

The experimental stages were under the direction of the "Service Unit" from 1914 to this year. The present development of the work initiated by that organization is in the hands of a newly created department of the city of Boston known as the "Boston Conservation Bureau," and of the "Citizens' Committee on Conservation," which has been incorporated under Massachusetts laws after a hearing by the State Department of Public Welfare. The municipal bureau is now functioning in the city of Boston. The Citizens' Committee, which was instrumental in securing the creation of the local bureau, proposes to extend its service to other cities and towns, first by demonstrating its methods by means of sample programs to be given under municipal or private auspices. The creation of local units or bureaus is the aim wherever this may prove feasible.

The "Unit Program" idea is the outcome of several years' tests of ways and means to convey constructive and thought-provoking information or inspiration to audiences of men and women. This is not the idea of one individual nor of a group, so much as the result of experience in the arrangement of programs suitable for this purpose. The peculiar type of program outlined is a mixture of motion pictures, singing by the audience, silent talks on the screen by slides, usually a five-minute punchy talk and the accompanying atmosphere which helps much to enable the audience to ap-

prove and accept what is placed before them. It is essentially a visual proposition—a "visual lecture." There is no attempt to provide mere entertainment, although almost invariably the programs prove to be enjoyable.

Last summer thirty-two open-air "Boston Park Shows" were given in municipal parks and playgrounds of the city on summer evenings, as well as a few in Cambridge and other near-by places. Since the plan was started, there have been approximately 2,000 programs arranged and presented to audiences aggregating 2,500,000. The schedule this summer calls for 35 Park Shows, three nights a week, from June 26 to the middle of September.

The indoor winter activities were given more constructive attention this past season than previously. At the request of Mayor James M. Curley, who has given his official backing and personal interest to the efforts, special attention has been given to safety and street accident prevention, personal and community health, and civic information concerning the city itself. From two to five meetings a week have been held in auditoriums of neighborhood school centers and municipal buildings.

An experiment was made by the Bureau

YOU ARE  
INVITED



MUNICIPAL  
BUILDING

BROADWAY  
SOUTH BOSTON

BY THE BOSTON CONSERVATION BUREAU TO SPEND A PLEASANT AND PROFITABLE EVENING WITH YOUR FRIENDS AND NEIGHBORS ENJOYING A NEW PROGRAM CONSISTING OF COMMUNITY SINGING, MOTION PICTURES OF EDUCATIONAL AND ENTERTAINING CHARACTER, INSTRUMENTAL MUSIC AND THE SILENT TALKS. INFORMATION ON CITY PLANNING AND ZONING FOR BOSTON.

FREE TO MEN AND WOMEN

OLDER CHILDREN WELCOME TO ACCOMPANY PARENTS

TUESDAY EVENING, MARCH 20, 1923, AT 8 O'CLOCK

FORM OF INVITATION USED FOR BOSTON'S  
COMMUNITY MEETINGS



SPECTATORS AND SCREEN AT A BOSTON PARK SHOW

to assemble the 15,000 employees and officials of the city in a series of municipal mass meetings in a theater. The first meeting, held Sunday afternoon, March 4, proved so satisfactory that the Bureau proposed, and the Mayor authorized, two more similar meetings during the month of April in the auditorium of the city's newest Municipal Building, opened that month.

Cooperation has been established by the Conservation Bureau with other city departments, including the Public Library, in whose auditorium the Bureau presented a series of its community programs on Sunday afternoons and Thursday evenings in April.

The material used in the programs arranged by the Conservation Bureau is assembled or created as may be necessary. A new motion picture film for safety and street accident prevention entitled, "Why Are We Careless?" has just been completed and will have country-wide showings to safety organizations, schools and other agencies, in addition to its use before Boston audiences. Another new film of more local interest showed "How Boston Relieved the Winter Fuel Crisis." The service of the city Fire Department and the Health Department campaign against diphtheria by application of the "Schick" method of prevention have been filmed. Plans are being made to visualize the Bos-

ton of the future by films in conjunction with the City Planning Board and other agencies concerned.

A detail of Boy Scouts is assigned to each show to act as ushers and helpers and to provide a color guard for the ceremonial opening of each program and in the "patriotic finale," during which the flags of the nation and the city are borne by the Scouts. Special nights have been planned to feature certain subjects of community importance, as for example: a Health Night, a City Planning Night, a Conservation Night, a Clean-up Night, a Citizens' Night, and a Home Building Night. The Bureau tries to impress on the men, women, and children who come to the meetings the importance of overcoming the bad habit so many people have of throwing away waste material in parks and streets.

So far as is known, Boston is the first city in America to undertake to inspire a better knowledge of municipal affairs and at the same time convey information of general welfare importance by means of an organized system such as has been indicated above. Motion pictures are surrounded by other features, all calculated to have equal educational value. For instance, the songs sung by the audiences are not merely for the sake of singing, but the words fitted to the music are a distinct part of each program.



# A Suburban Federation That Gets Things Done

By Eleanor Bisbee

**P**OSSIBLY on the theory that if a little of a thing is good, more must be better, suburban communities of the rapidly growing city of Miami, Fla., have organized and then organized some more to get the things they want. Improvement associations are nothing new, but Miami's suburbs have elaborately federated about fifteen such associations with an interlocking system that has succeeded in making the parent city of Miami take notice. Few of these communities are incorporated, but they have their separate identities, and without sacrificing this they have made such an effective unit of themselves that representatives of the State Board of Health, with offices at Jacksonville, state their conviction that a similar method would have prevented many of the mistakes made by that city in its early years.

Sanitation was one of the first things that brought the communities together. Separate efforts had failed to produce any adequate inspection or control of sanitary conditions. When the highly effective anti-mosquito campaign was on in Miami, the non-incorporated communities at Miami's door had no authority whereby they could enforce similar measures. Such difficulties induced them to band together in a federation and then to appoint a special suburban board of health, which was persistent enough to get action from the theretofore silent State Board.

Then other problems arose, and together the associations, none of them separately having strength for big action, started movements to introduce into the State Legislature various bills for the establishment of the Torrens land title system, widows' pensions and similar measures.

When a million-dollar road bond issue

was up for consideration, the federation left few stones unturned in the effort to insure the direct assignment of that money for properly built roads along the most necessary routes. To be sure, the organization did not fully control the situation, but it did have sufficient command to prevent a vote on a blind issue and to secure some valuable publicity upon the proposed road program.

A state problem occupied some time. Finding that a state law provides large fees for county bond trustees, — a law which was passed when there were only three banks in the whole state,—the federation started vigorous agitation for the introduction of a bill to abolish the old trusteeships,

The form of organization and methods of work of the Federated Improvement Associations of Dade County, Florida, described in this article, offer practical suggestions for cooperative action in the solution of regional problems by local civic bodies.

with a possible saving to each county of thousands of dollars.

Now the federation is busy with the problem of annexation, as Miami is trying to expand its limits. The suburbs are almost unanimously anxious for a borough system. To prevent any possibility of taxation without prompt return in improvements, the federation has had its representatives meet with Miami's civic organizations and has conducted an informal campaign of education in its own constituency. It also is doing much to have all citizens of the federated communities registered voters with their poll taxes paid, so that in the event of an election on annexation they will be ready for it.

To prevent any minority dictatorship in the federation and also to prevent any one community from becoming too dominant, the constitution provides for open meetings and unit voting. Each meeting must be held in conjunction with some local association, a regular rotation being followed. Thus, one week, the Little River Improve-

ment Association meeting is attended by the delegates of the Federated Improvement Associations of Dade County. Another week the federation meets with Allapattah, and so on around, so that there is little chance for secret connivances or clique rule. Each association is entitled to five delegates, who have to submit credentials before being recognized. These delegates, however, vote as a unit, and on any occasion any delegate may invoke the unit-rule and have a roll call of the towns represented. Non-delegates present have the privileges of the floor, but may not vote.

Furthermore, the federation cannot take final action itself. It can consider and recommend various measures of common interest, but every measure has to be referred to the local associations for action, and then the delegates vote accordingly in determining the federation's formal position on any question. Occasionally, interested persons have tried to railroad through quick action. If sentiment was fairly unanimous, the federation has sometimes resolved itself into a mass meeting with a special chairman, and has thus taken such steps as it wished, but the federation itself has not endorsed anything until it was voted upon by a majority of the member associations in regular local meetings.

Financing is as simple and democratic as everything else in the organization. At first it was agreed that any necessary expenses, approved in a regular meeting, should be prorated among the associations. This proved rather clumsy, as there were never any sums available for minor expenses. Recently some of the stronger associations have agreed to pay \$3 a month into the treasury for postage, advertising, etc.

A central office was debated, but the fear of any autocratic control quashed the idea, and the constitution provides only for meetings held in conjunction with member association meetings. Committees meet at members' homes or in the community halls.

Standing and special committees are appointed. They include the resolution committee, which sees that resolutions which have been submitted in proper form and have then been passed upon by the member associations are sent to the individuals or bodies to which they are directed. This committee frequently attends the county commissioners' meetings. There is also the

sanitation committee, which works in conjunction with the State Board of Health in enforcing the sanitary requirements and in appointing deputy inspectors. The task of the road bond committee is to make regular reports on the uses of road bond money recently voted by the county.

As the bi-weekly meetings of the federation frequently last until 11 p. m. without much lagging of interest, and as the press gives quite full recognition to any federation matters, this organization is a factor in solving many of the unavoidable problems of a newly developed section.

**EDITORIAL NOTE.**—The first year of the Federated Improvement Associations of Dade County, Florida, was completed this spring, and the annual election was held May 22. For the following statement as to the method and result of the election, *THE AMERICAN CITY* is indebted to the Secretary of the federation, Captain I. H. Rigg:

"While the federation reserves to itself the right to elect its president from among the accredited delegates, that official may not succeed himself in office for a consecutive term, so cautious are our constituencies in guarding against every opportunity for 'machine domination' and personal control for private political ends. The president for the year having been duly elected by a majority vote under the 'unit rule' (namely one vote for each affiliated association, regardless of the number of its delegates—from 1 to 5), the local organization he represents is not entitled to further representation on the Executive Committee or Board of Governors. The same rule obtains with respect to the secretary and treasurer, with the exception that the sitting officer may be reelected. Thereupon, and automatically (under our constitution), each local association is entitled to one vice-president, in the order of the federation's choice, but his nomination for that office is the exclusive privilege of the parent body he represents.

"How a political or sectional machine could be built up under such stringent limitations it is difficult to see; and this fact has, in a large measure, been responsible for the public esteem in which the federation is held as a civic body and for the indirect power and moral influence it exercises in the county boards and even at the Miami City Hall, where we have no official standing whatever as citizens or voters. Moreover, all services and duties are purely voluntary and without any compensation whatever to any delegate or officer. Doctors, lawyers, scientists, engineers, ministers, labor union officials, retired army and navy officers, etc., deem it an honor to be accredited as a delegate from their community organization and consider it their duty to render to the federation professional service at its demand without thought of pay. As a result, there is no jealousy, suspicion or graft and it has been said of the institution that 'in knowledge, intelligence and civic pride it outranks any official political group in the county.'

"The officers elected for the second year, and the local associations they represent, are as follows:  
President, Dr. F. D. Felt, Allapattah  
First Vice-President, E. M. Ostlund, Everglade Ave.  
Second Vice-President, Wm. Matlack, Lemon City  
Third Vice-President, A. C. Kriege, Little River  
Fourth Vice-President, Harry Bourinot, Arch Creek  
Fifth Vice-President, R. E. McDonald, Fulford  
Sixth Vice-President, F. M. Terrell, Highland Park  
Seventh Vice-President, Montague Hamm, Hialeah  
Secretary, Capt. I. H. Rigg, Old 42nd Street  
Treasurer, Maj. T. F. Lyons, Rockmoor

"As the federation's first president, Ernest H. Lebel, could not succeed himself, his efficient work in initiating and organizing the federation was recognized by electing him 'President Emeritus.' In this capacity he now serves the federation as field organizer and propagandist in districts of the county as yet unaffiliated."



DAYTON'S NEW CORRECTION FARM AND WORKHOUSE

# A Correction Farm Supplants a City Workhouse

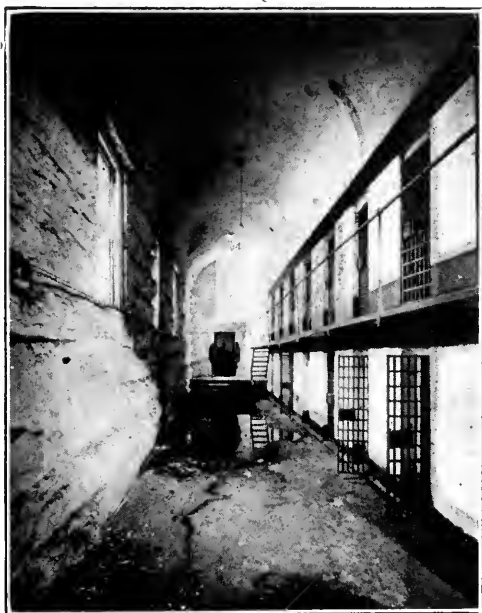
By Edward V. Stoecklein

Director of Public Welfare, Dayton, Ohio

**S**OON after the inauguration of the city manager form of government in Dayton, the Superintendent of the City Workhouse, an institution located in the heart of the city, recommended to the Director of Public Welfare the purchase by the city of a correction farm. The old workhouse building had been in use for a hundred years, first as a county jail. It had been remodeled a number of times, but the structure was old and badly deteriorated. It was believed that the prisoners housed in this dilapidated institution, which originally was built for 75 but which was required to house as many as 250, were returning to society in a worse condition than when they entered. The old system broke a man down physically and made him a revengeful wreck.

The matter of purchasing a farm was seriously considered by the City Manager and the City Commission, with the result that the Welfare Director, the Workhouse Superintendent and the Purchasing Agent were instructed to serve as a Workhouse Location Committee, to obtain a list of

possible sites for a correction farm. This committee secured the services of a local auctioneer and real estate broker to obtain for their inspection a number of possible locations for such a farm, the idea being to secure a rough piece of land which could be bought up and made into a good farm through labor performed by prisoners. In selecting the site, consideration was given to the accessibility to the city, transportation facilities, land values, drainage, timber and building materials,



CELL BLOCK OF THE OLD WORKHOUSE, NOW ABANDONED

such as gravel, sand and stone.

The site finally selected was the Schroeder Farm on the Germantown Pike, about one mile south and west of Lakeside Park, the terminus of the Peoples Railway Company. The farm consisted of 111.48 acres and included an old seven-room farmhouse, a bank barn and a spring house. The soil was mostly clay. A stone quarry opening up into a ledge was one of the most important features, the committee considered, because this would provide work through all seasons of the year. The ledge seems to contain unlimited quantities of limestone. The contract for the purchase of the Schroeder Farm, at a price of \$15,500, was approved by the City Commission on March 8, 1916.

### Construction by Workhouse Labor

Plans for the building were made by a local architect. They provided for a central rotunda with dormitories constructed diagonally, with dining-room, kitchen and power-house in the rear, all parts of the building connecting. In the work of construction it was necessary to employ some paid trade labor, but all the common labor work was done by the prisoners.

Soon after the beginning of construction work the city purchased and located in the quarry a crusher with a capacity of 85 to 90 yards per day. This equipment, operated by a gang of prisoners, has crushed all the stone used in the reinforced concrete construction of the buildings. It has also produced the rock used in the development of the roads in and about the farm grounds and the main road leading from the Germantown Pike. The construction work on the buildings was completed and the male prisoners moved to the farm during the week of June 16, 1921.

Four wings of the building proper are used for dormitories. The second floor of the rotunda is used as an auditorium. The dining-room is equipped with concrete tables, which insure cleanliness. A cold storage room forms a part of the building, and a laundry fully equipped is operated by the prisoners. The cooking is done with coal, and the coffee urns are heated by steam. The power-house is equipped with two low-pressure and one high-pressure boiler, together with the necessary pumps and compression tanks. A tailor shop and

a barber shop also form a part of the building. The institution will accommodate 300 people. The sewerage facilities at the farm consist of a septic tank and a filter bed 52 feet wide by 180 feet long.

The Superintendent and his family were temporarily housed in quarters designed for the office, until the residence was erected. This building, which also houses the women prisoners, comprises 13 rooms and is of fire-proof reinforced concrete construction. Four rooms in the building—dormitory, dining, bath and hospital rooms—are devoted to the women prisoners. The basement accommodates the heating plant, storage room and ample quarters for two automobiles.

### Hogs and Farm Produce

During the year 242 hogs were purchased for a price aggregating \$2,130. The hogs were fed on city garbage collected by a truck of the Division of Correction manned by a guard and six prisoners and hauled to the piggery from certain up-town hotels and restaurants. During the period from February to August, 1922, a total of 134 hogs were sold for \$2,818. The piggery has proved that it can furnish the institution with good, wholesome meat and at the same time do a little better than break even from a financial standpoint, through the feeding of garbage and the use of prison labor. Approximately 815 pigs are now being taken care of by the prisoners.

Some of the produce raised on the farm by the prisoners last year included: dressed pork, 2,313 pounds; cabbage, 26,902 pounds; lard, 326 pounds; beans, 2,238 pounds; celery, 6,000 stalks; milk, 2,400 gallons; green onions, 50 dozen; radishes, 150 dozen; cucumbers, 40 dozen; sweet corn, 688 dozen; peas, 12 bushels; string beans, 63 bushels; tomatoes, 307 bushels; potatoes, 240 bushels; sweet potatoes, 17 bushels; red beets, 54 bushels; carrots, 76 bushels, and onions, 39 bushels. Besides this produce for human consumption, there was raised forage as follows: millet, 6 tons; wheat, 324 bushels; oats, 207 bushels; field corn husked, 160 bushels.

Contracts have been entered into with thirty counties and twenty towns for the housing and care of their workhouse prisoners at the rate of 70 cents per day.

There were received in the 12 months of 1922 from the local and other courts a total of 1,326 male and 78 female prisoners. The chief causes for commitment were: drunkenness, 389 cases; loitering, 293 cases; Crabbe Law, 180, and petit larceny, 143.

For some years past a probation system has been in operation at the Dayton Workhouse. During 1922 thirty prisoners were

permitted to work at their trades outside the confines of the farm and to report each night or at the end of each week, as the case may be, to the Superintendent. The moneys earned were turned over by the Superintendent to the families or creditors, a sufficient amount being retained for the incidental expenses of the prisoner concerned.

## An Hour's Pitchin'

The Revival of "Horseshoe" Is Helping Bring Back Old-fashioned Neighborliness to American Towns and Cities

By Mabel Travis Wood

Playground and Recreation Association of America

LESS than a century ago there used to be a place set sacredly apart in every rambling village thoroughfare. It was the place between Tompkins' general store and the post-office where the dirt was torn up in two spots and where, after supper, could be heard the thud of falling weights. Two or three times of an evening came the clank of metal upon metal, followed by shouts of "Ringer!" The older and staidier citizens and the young fellows all turned out to play or to watch, drawn by the irresistible magnetism of the piece of iron that once served as equine footwear.

Horseshoe is a typically American sport. Though the idea of pitching a weight at a mark dates back to the discus and the quoits of ancient Greece, the horseshoe science gained its following in early America. Washington's soldiers played it to while away hours in camp. Horseshoe became the official sport of men who worked hard all day tilling the soil or promoting the industries of a new land. Yankee ingenuity and Yankee love for earnest, skillful play turned naturally to an hour's pitchin' of evenings, when neighbors

gathered and forgot the day's work in the keenness of competition.

With the transformation of many Tompkins' Corners into well-paved towns, the ancient game suffered a relapse. It was not because of the passing of the horse, nor because of the lack of the necessary leisure hours. It was because of the submergence of the kind of community spirit the neighbors of Tompkins' Corners had.

But the love of horseshoe was not dead. Ancients who had played it in the home town long ago and victims of the new era who had been fortunate enough to visit



THEODORE WIRTH, SUPERINTENDENT OF PARKS OF MINNEAPOLIS, ENJOYING A GAME OF PITCHIN'

some shaded retreat where the play place hadn't yet been effaced by asphalt, often wished they could get up a game.

One of the first cities in which the desire reached fulfillment was Minneapolis. The Park Board playgrounds were looking for a form of recreation that would appeal to men. In announcing their summer plans to the newspapers shortly before June, 1919, the Board of Park Commissioners casually mentioned an attempt to revive the old game of horseshoe. The notice brought so many inquiries and started so much interest that a city horseshoe club was organized. Soon there were about three hundred courts on vacant lots, back yards and alleys and on the park playgrounds in the Twin Cities. The revival became state-wide and the Minnesota State Horseshoe Pitchers' Association developed.

Like Minneapolis, the cities of Akron, Ohio, St. Petersburg, Fla., and others have been taking up the game. Now there is a National Horseshoe Pitchers' Association. Several journals are giving attention to the sport, and approximately twenty-five concerns are manufacturing horseshoe equipment. The annual horseshoe tournament at Sunshine Park, St. Petersburg, is as thrilling to lovers of this sport as is the World's Series to lovers of the diamond. Now Community Service has adopted horseshoe pitching, which means that the neighborly after-supper game is spreading to towns and cities all over the country.

### **Submergence and Revival of Community Spirit**

The submergence of the Tompkins' Corners spirit is the main reason for Community Service. Modern life had stifled the community play instinct. The leisure-time activities that ought to mean health and self-expression and friendliness had become commercialized, individualized, non-recreative. We have too many bleacherites who might be relaxing their muscles and nerves from the day's tension through active and not passive amusement. They do not play—they watch the others play.

Towns nowadays demand more sophisticated recreation than the husking bees and hay rides that delighted Tompkins' Corners, but Community Service has found that the same sort of community spirit can come out of giving Dunsany in a little theater or playing Grieg in a community symphony

orchestra. As for horseshoe—the game is the ultimate in simplicity and the ultimate in sophistication. It is one of those complete and satisfying things the ages won't alter.

One of the best things about the game is that it draws no age limit. Granddads who couldn't make a home run or compete in a community field day often come into fame for their canny shoe swinging. On the other hand, horseshoe makes a strong appeal to the younger element, who have been known to desert even the diamond for this other "national game." Girls and women are not going to miss their share of the fun, and they have taken up the game in many towns.

Community Service cities in almost every state have transformed vacant lots from eyesores into playgrounds, and have set up horseshoe pitching courts on them. Meridian, Miss., has cleaned up two vacant lot playgrounds and is planning several more. Rotarians and Kiwanians and the Chamber of Commerce have staked fierce horseshoe battles. Horseshoe is a favorite sport in Aberdeen, Wash., as is shown by the fact that the official blacksmith to the Community Service League claims that the city used 2½ tons of horseshoes last summer.

A Pennsylvania town of 10,000 people used to spend \$20,000 every year for a professional baseball team which had provided its principal summer amusement. At the risk of becoming "a dead one," the town decided last year it couldn't afford to keep it up. But the summer of 1922 proved the liveliest the town ever spent. With the help of the Community Service Committee, a community recreation program was organized, featuring athletics for everybody. Horseshoe pitching was the most popular number on a popular bill. Dozens of small courts sprang up on the town's vacant lots and road spaces. Three large spaces were lighted for evening play, and were nightly the scenes of thrilling tournaments. Spectators lined the ropes three deep, ready to greet each "ringer" with mighty cheers. Officials carefully determined relative distances of shoes and kept scores, and the fife and drum corps often turned out to add to the occasion.

Maybe the chance to put in an hour's pitchin' in spare time would make it easier for your people to get together and pull together on community projects.

# Improvements in the Water-Supply of Woodstock, Illinois

By Kendall Austin

City Engineer, Woodstock, Ill.

THE original water-works plant at Woodstock, Ill., consisted of five wells varying from 100 to 2,000 feet in depth. The pumping equipment consisted of one air compressor and several makes of plunger pumps. The total power of the motors on the compressor and pumps was 240 horse-power. This was used to pump 500 gallons per minute into a surface reservoir with a capacity of 225,000 gallons. Electric power was generated at the municipal electric plant at an estimated cost of 2.8 cents per kilowatt hour as

Three years ago Woodstock, Ill., was using 240 horse-power in motors to secure 500 gallons of water per minute. To-day the city is using 50 horse-power to pump 1,000 gallons per minute. The new equipment that was installed not only effected a tremendous saving, but also secured the additional amount of water which was needed for the increasing demand.

measured at the switchboard.

In computing the cost of water per 1,000 gallons, an efficiency of 85 per cent was assumed for the motors, giving 282 horse-power as the power input to the motors, or 210 kw. In one hour this would give an electrical consumption of 210 kw. hr., which, figured at 2.8 cents per kw. hr., makes \$5.90 for power. The water delivered to the reservoir amounted to 500 gallons per minute, or 30,000 gallons per hour, and cost, therefore, 19.7 cents per 1,000 gallons for the power charge alone.

## The Present Well System

In place of the former plunger equipment using 240 horse-power we are now using two deep-well centrifugal pumps, made by the Layne & Bowler Company, Memphis, Tenn., direct-connected to two 50-horse-power Westinghouse motors. The entire contract was let to the Layne & Bowler Company, which guaranteed to produce a minimum of 800 gallons per minute and a maximum of 1,200 gallons per minute.

Two wells were constructed, and the tests which were made at the completion of the work showed that the two pumps were drawing water in excess of the maximum guaranteed. The two wells are each approximately 196 feet deep and are spaced 100 feet apart. In each well the pump is about 125 feet from the surface and is connected to the electric motor, which



EXTERIOR OF DEEP WELL PUMP-HOUSE, WOODSTOCK, ILL.



rests on a concrete foundation at ground level by means of a long drive-shaft. The vertical motor is mounted on a cast-iron frame providing ample space for the flexible couplings connecting the motor-shaft with the pump-shaft.

The floor of the pump-house is of concrete, the remainder of the building being of wood. A small derrick is built on top of the pump-house so that the pump can be pulled out of the well every three or four years for a general overhauling. The pump is capable of delivering 1,000 gallons per minute into the reservoir, and the two pumps operating at the same time will pump approximately 2,000 gallons per minute. Although the wells are only 100 feet apart, they do not interfere. One pump could easily have taken care of the requirements of Woodstock, but by having duplicate outfits there is a safety factor in case one should be accidentally shut down, and, further, it makes provision for future needs. Each pump runs 6 hours a day alternately. Twelve hours' pumping is all that is required for present needs. The labor required on the new station is almost negligible, as it takes the power-house engineer only a few minutes a day to start and stop the pumps, turn down the grease gun wheel and see that everything is working satisfactorily.

The cost of pumping water with the



DEEP-WELL PUMP INSTALLATION  
AT WOODSTOCK, ILL.

new system, using 50 horse-power to pump 1,000 gallons, is 2.05 cents per 1,000 gallons. Of course, this means only the power cost, to which should be added a charge for the up-keep of the equipment. We feel that the maintenance cost of the new pumps and motors is much less than on the old motors, compressor and plunger pump.

### Comparison of the Two Systems

The table below shows a comparison of the former pumping system and the present system, figured on a daily consumption of 720,000 gallons:

	Gal. per Minute	Gal. per Hour	Power Cost per 1,000 Gal. in Cents	Power Cost per Day	Power Cost per Year
Past ..	500	30,000	19.7	\$141.80	\$51,757.00
Present.	1,000	60,000	2.05	14.76	5,387.40

A saving of approximately \$46,300 a year in our power bill has been the result of this change. In comparing the past and present installations, we feel that the full benefit is not shown by the money saving alone, as there is also a distinct satisfaction in knowing that we have a water-supply which is up to date, efficient and economical to operate, and which will take care of Woodstock's water requirements for many years to come.

## The Cost of Ancient Pavements

SOMETIMES the harassed taxpayer when faced with the immediate possibility of paving assessments, inquires regarding the permanent highways of which he has read so much. Perhaps, too, if he is a student of history, he may remark with feeling that the Appian Way built by the Romans has lasted for some 2,000-odd years and that the pavements of other ancient peoples are still in existence. These old pavements certainly are in existence, to the credit of the old road build-

ers, but it is true also that they have never been subjected to modern traffic. Also they were built of solid masonry sometimes several feet thick, and recent rough estimates have developed the fact that it would cost something like \$250,000 per mile to reproduce the famous Appian Way under present costs and conditions. No wonder these highways lasted 2,000 years, and no wonder we do not imitate them.

—W. G. Emmons, Professor of Highway Engineering, Agricultural and Mechanical College of Texas.

# Curbing the Curb Pump

By C. A. Crosser

Secretary, Commission of Publicity and Efficiency, Toledo, Ohio

**M**ANY American cities are making a vigorous fight for the freedom of their streets. One phase of this campaign has been directed against the glistening red curb gasoline pumps that are a godsend to the gas-famished motor car—and the bane of traffic officers and city planners. At present, curb gasoline pumps have been flatly forbidden in fourteen American cities from which reports have been received. Their installation has been restricted in many others by zoning and special ordinances.

The following cities forbid the further installation of curb gas stations; in some of these cities existing pumps are permitted to remain, and some have set a time limit when all those now in operation must be taken out: Memphis, Akron, Ohio, Washington, D. C., Columbus, Cincinnati, Rochester, St. Louis, Oak Park, Ill., Yonkers, N. Y., Denver, Cambridge, Mass., Paterson, N. J., and Wichita, Kans. Existing pumps are permitted to remain in Memphis, Akron, Yonkers and Paterson, N. J. The Cincinnati Planning Commission has ruled that existing pumps must be removed by January 1, 1925. Wichita set January, 1923, as the limit.

Some cities have restricted curb stations by other than zoning ordinances. It has been done in Indianapolis by agreement with the chief of the Fire Prevention Bureau. St. Paul forbids them on streets on which there are car lines. Cleveland and Philadelphia require that storage tanks be buried on private property, although pumps may be placed on the curb. No curb pumps are permitted on Cleveland streets where the dis-

tance between the curb and the nearest street car track is less than 15 feet.

Minneapolis forbids curb pumps inside the "fire limits," which embraces territory within a half-mile radius of the business district. Proprietors of those now in existence are required to give a \$5,000 bond and pay a \$25 annual license fee. The Baltimore, Md., Board of Estimates has adopted a policy of not issuing permits for curb stations. Buffalo and Louisville, Ky., are among other cities that are considering the matter of eliminating or regulating the curb station.

The Toledo City Plan Commission is sponsoring an ordinance forbidding curb gasoline stations and air hose lines within the down-town district. It sets a time limit for the removal of the present pumps and requires a \$25 annual license. Proprietors of these stations in Toledo declare that the stipulated district is too large, but they have agreed to work out a compromise plan with Council.

Other cities have set a substantial license for curb stations. Minneapolis charges \$25



**WHERE TRAFFIC IS SLOWED UP AND ACCIDENTS ARE IMMINENT**  
A gasoline station in Toledo where curb is 12 feet from outer car rail

annually for those inside the fire limits. Grand Rapids and Evanston, Ill., charge \$10 annually. Indianapolis requires a \$15 annual license for all gasoline pumps. Springfield, Ohio, requires a \$5,000 indemnity bond to protect the city in case of accident for which a curb station might be held responsible. Some municipalities charge a fee of \$2 or \$3 annually or upon installation to cover the cost of inspection.

The main objection to curb gasoline stations lies in the argument that they cause a slowing up of traffic in the streets upon which they are located. This results from the lining up of one or more machines to take on gasoline. In reply to this, the proprietors of curb stations declare that the location of their business places speeds up traffic rather than hinders it. They contrast the delay to traffic caused by a line of parked machines, with the one or two minutes that it takes a motor car to stop before the pump and fill with gasoline. The portion of the street in front of their premises is always free of parked cars, they declare. A lesser argument used against the curb station is that installation or removal of tanks frequently damages the curb and pavement, which entails a heavy expense for which the city is not reimbursed.

Curb station men declare that prohibiting

their pumps in built-up districts in which few drive-in stations may be found, will force motorists into garages to get gasoline, where the danger of explosion is much greater than in the open air. But the building codes of most cities require such care in the installation of buried storage tanks inside buildings, that this argument is not deemed of much weight.

The elimination of curb gasoline stations has focused attention on the method of the storage of gasoline inside buildings. Most cities limit the capacity of the storage tank buried under the basement floor. Pumps must be constructed so as to prevent any leakage. Filling inlets are outside the garages. Several cities, including Los Angeles, Buffalo and Columbus, require storage tanks to be outside buildings.

A recent article in *THE AMERICAN CITY* relates that concerns operating drive-in stations are now making an effort to build these places of an artistic design to harmonize with the oftentimes pretentious and beautiful structures in the vicinity.

Where regular zoning ordinances do not restrict the location of the drive-in stations, several cities have required the consent of property-owners living in the vicinity. Among these are Washington, D. C., and Oak Park, Ill.

## Detroit's Street-Numbering System to Be Extended Throughout Wayne County

**T**HE Board of Supervisors of Wayne County has appointed a special committee which is working with the Post Office Department, the Wayne County Road Commission, and representatives of R. L. Polk Company, directory publishers, on a plan to extend Detroit's street-numbering system throughout the county. They have already drawn up tentative plans.

The plan contemplates utilization of the Detroit system as a nucleus, the north-and-south base line following Woodward Avenue, and the east-and-west base line following in a general way the Detroit River. The base lines will be projected outside the city to the best advantage, and the numbers will be extended from these base lines.

The numbers will be so spaced as to take one number on each side of the road every 10 feet. On this basis it has been found

that points on the west county line, which is the farthest point from a base line, will be numbered under 100,000. that is to say, no numbers in the entire county would be higher than 99,999, or five figures.

It is proposed to make an appropriation of \$20,000 to take care of the expense during the current year, which, with the co-operation of the Post Office Department, the City Engineer's office, the Wayne County Road Commission, and other interested public organizations, is expected to secure material results this year.

This system will greatly simplify delivery of mail and merchandise, and also make it easier for strangers to find their way about. No longer will it be necessary when directing a stranger to a certain farm to describe landmarks if he is told the name of the road and the number of the property.

# Transplanting of Big Trees Makes Quick Showing in City Parks

Large Trees Now Transplanted as Readily as Small Ones

**T**HE Park Department of the city of New York has been criticized for many years for planting small trees which, before they attained any size or beauty, were stunted and exhausted by the lack of good soil and fresh air when growing under city conditions. It occurred to Francis P. Gallatin, Park Commissioner of New York City, that by transplanting full-grown trees, he would at least obtain an immediate effect and give the city many

putting in as much as 20 cubic yards of top soil, so that in the new soil the trees will not only grow, but do better than they did originally in their old soil. This work was begun in 1921.

The large elms that were moved into Central Park for the Edward Greene Memorial, one large elm being planted to represent the five boroughs of New York City, were transplanted on a patented tree-moving machine, by Lewis & Valentine



**MOVING A LARGE COPPER BEECH IN FULL LEAF FOR A DISTANCE OF 15 MILES**  
This tree was moved on a large tree-moving machine with a ball of earth weighing over 12 tons.

years of beauty in Central Park and other parks, even if the trees did not do more than hold their own. He made an extensive canvass of Long Island, where several thousand large trees have been transplanted with unusual results, and then made a report to the city asking for an appropriation of \$100,000, which he is now spending for moving large, full-grown trees. Instead of putting all of the money into the purchase of large trees, he has practised a wise policy in excavating great holes for these trees and removing the old soil and

Company, New York City. This invention, made by Harold C. Lewis about ten years ago, makes it possible to successfully transplant trees up to 3 feet in diameter. This invention has been used to make the immediate landscapes possible about the Lincoln Memorial, the Arlington Memorial in Washington, the Harvard Yard, Cambridge, Mass., and the grounds of a large number of other universities and institutions, the Boston Common, and the grounds of many large country clubs in different parts of the country.



lion gallons of water a day, therefore, in 1922 the annual saving in operating cost alone was \$19,145, making a clear saving to the department in operating expenses alone of \$7,645 for that year. From this statement an idea may be obtained of what the cumulative saving has been since 1910.

In addition, had it not been for the reduction in water consumption secured through the introduction of meters, it would have been necessary in 1915 to secure additional sources of supply and to increase the pumping-stations at a cost of approximately \$400,000. The necessity for this work was deferred until the present time, thereby saving the interest and sinking fund charges on \$400,000, or about \$24,000 a year for a period of six years, a total of \$144,000, or \$54,000 more than sufficient to pay for the installation of the meters. This estimate takes no account of the saving in the added operating expenses brought about by the addition of new sources of supply, machinery, etc.

It would be possible to multiply examples of the saving effected by the introduction of meters indefinitely, but no good purpose would be served. The technical press, proceedings of the technical societies and departmental reports are full of them, if one will only take the trouble to find them.

### Effect of Metering on Public Health

It may be well at this point to remark upon the effect of meters upon the public health by citing the case of East Orange. The death-rate in East Orange in 1910 with 10 per cent of services metered was 10.77 per 100 of population. The death-rate in 1921 with 100 per cent of services metered was 9.54 per 100. A study of the vital statistics of this town indicates that the introduction of meters had no effect whatever upon the death-rate. A study of the vital statistics of other cities where meters have been introduced will show the same result. In fact, despite the introduction of meters the total death-rate in all of the larger cities has been gradually decreasing.

If one, however, were to assume that the only reason for the installation of meters was the saving in capital outlay and operating expenses which would be effected thereby, he would commit a grievous error. As a practical matter, the conditions under which water-works in the United States

have been developed in the last thirty years have greatly changed, and the need of stopping waste for the purpose of conserving available sources of water-supply has become more important and is becoming more and more important each year.

In the past thirty years the population of our American cities has doubled. Concurrent with the enormous increase in urban population, a great increase in the density of population along the streams available for water-supply has also occurred. With this increase, large industries have developed and many streams which were formerly satisfactory for use as sources of supply in their natural state have become polluted with sewage from factory waste. This has made necessary the treatment and purification of water-supplies, which has added materially to their cost.

In addition, the great increase in population in American cities has made it necessary for cities to go farther and farther from the center of population to secure adequate supplies. This has also added greatly to the cost of water.

The economic burdens of water-supplies, therefore, have made it imperative to conserve waste in order to prevent an unbearable increase in the burdens of the taxpayer and the water-taker.

In almost every city a time comes when the new work required to supply the ever-increasing waste of an unmetered system becomes so large, and the cost of building such new works becomes so great that the burden cannot be further borne and the meter system is adopted.

### Meters Increase Efficiency of Water Department

Another sound argument for the introduction of meters is that the only way in which a water department can be efficiently operated is by the introduction of meters. In no other way can the water unaccounted for and lost in the distributing system be accurately measured. The water-works manager operating a water-works system with master meters which register the amount of water delivered into the distribution system, but with no means of measuring the water actually consumed, is very seriously handicapped in determining and fixing upon the sources of waste, whereas, if all consumers are metered, he can sum

up the consumption as measured by the consumers' meters, compare the revenue-bearing water consumed with that pumped, and take steps to remedy the intermediate losses.

### Equitable Rates

I have already touched upon the importance of establishing equitable rates so that all consumers pay in proportion to the service which they take, and the difficulty of establishing such rates with any other system of charges than the meter system. This problem of the equitable subdivision of the rates is a most important one. I will not attempt to go into the details of establishing a system of rates which will equitably distribute cost between different classes of consumers and between the taxpayer and the water consumer, but I should like to call attention to certain principles which seem to be agreed upon by courts, commissions and valuation engineers as to the methods which should be followed in the apportionment of the cost of water service. I do wish to emphasize that the existence of a mixed schedule for metered and unmetered water service, or a flat-rate system of charges, greatly complicates the problem of distributing the cost of water between consumers as well as between the consumer as such and the taxpayer.

There is no basis for establishing a rational system of flat charges. Such a scale of rates is at best a makeshift, and one man's guess is as good as another's. A system of flat rates must necessarily be based upon estimates. Such estimates are formulated on widely different plans, such as the number of fixtures or rooms or persons in the house, the floor space, or the height of the house, the number of feet front which it occupies, or the purpose for which water is used. Such schedules are of necessity incorrect and work unevenly, requiring consumers under certain conditions to pay but little, and under other conditions to pay exorbitantly for the water they use. The water-works system that attempts to work on a flat-rate schedule cannot possibly do even approximate justice between its consumers.

The general principle for a proper rate structure for a water-works system may be outlined as follows:

1. The cost of service should be equalized between the water-taker and the tax-

payer. Heretofore, the water-taker has frequently been assessed more than his just share of the cost of the water service rendered by privately-owned plants, because of the following reasons:

- a. That an insufficient amount of revenue has been derived through taxation for public fire protection service and for excess plant.
  - b. That the water consumer has been required to contribute more than his share of the taxes in a given municipality by reason of the heavy tax assessments levied upon private water plants.
- In the same manner the water consumer has frequently been assessed less than his just share of the cost of water in the case of municipally-owned plants, because too large a proportion of the total revenues required from the plant has been raised from taxation, and too small a proportion has been recovered from the water rates.
2. Public fire protection service is a property benefit, and the cost of this service should be assessed upon the property owner or taxpayer and not upon the water-taker.
  3. It is generally conceded that the revenue to be derived from domestic, commercial, manufacturing and public consumption of water for other than fire protection purposes should be subdivided between fixed service charges and proportional service charges.
  4. There should be no free water, not even for municipal or public purposes.

The principles which apply to establishing fair rates may be stated as follows:

1. Fair and equitable rates must cover all operations of the water utility.
2. The division of the rates among the consumers must be such as to give no undue preference to one class of consumer over another.
3. In determining how the rates should be divided, the cost of the service required for each class of consumer must be determined, and the entire cost, so far as possible, divided among the different consumers who take different classes of service.

Bearing these facts in mind, the problem of fair rates may be broadly stated as follows: Every water-works plant, municipal or private, has a certain sum of money invested upon which it must pay interest or dividends, or both. In addition, it must set



aside an annual reserve for depreciation, or pay annually into a sinking fund an amount sufficient to retire all outstanding bonds at maturity. It must pay operating expenses and taxes. If the property is exempt from taxes, they need not be included in the gross revenue required, but the principle is the same. If the plant is self-sustaining, these expenses must be paid from the revenue of the water-works, whether municipal or private.

The problem of devising a schedule of rates which distributes the cost equitably among all classes of consumers therefore involves two main operations:

- A. Determining the gross revenue required to provide interest or dividends, or both, plus a proper allowance for operating expenses, taxes, and a reasonable annual reserve for depreciation or sinking fund charges, as the case may be.
- B. Establishing the incidence of the rates by:
  1. A fair separation of the area served by the water purveyor into districts if, under the conditions of service existing in the plant, certain consumers possess the advantage of location, whereby the cost of delivering water to some is less than the cost of delivering water to others. Such a separation of area is not neces-

sary if an average rate for the entire area may be used.

2. Subdividing the gross revenue between:
  - a. Miscellaneous revenue
  - b. Public fire service revenue.
  - c. Revenue derived from the sale of water to domestic, commercial, manufacturing and public consumers.
3. Subdividing the revenue derived from the sale of water between proportional service costs and fixed service costs.
4. Subdividing proportional service charges for water supplied between the classes of consumers as a means of establishing a sliding scale of rates, if desired, which varies with the cost of supplying water in different quantities.

If a fair rate structure requires that a portion of the charges should be derived from the volumetric measurement of the water consumed, it is obvious that the only way in which this can be done is by the meter system and, therefore, without meters no rational system of rates can be established which will work uniformly for all classes of consumers.

## Model Ordinances for New York State Cities

**M**ODEL ordinances on twelve different subjects of municipal interest are now available for the cities of New York State, as a result of the work of the State Bureau of Municipal Information, conducted by the Conference of Mayors and Other City Officials of the State of New York. These cover the following subjects:

Soft drink dispensaries  
Pool and billiard-rooms and bowling-alleys  
Junk and second-hand dealers  
Dance-halls  
Shade trees  
Driving cattle through the streets  
Pedestrians  
City planning commission  
Bill-boards  
Second-hand automobile dealers  
Milk  
Bond ordinance and forms

The model ordinances are based on a careful study of existing ordinances in the cities of New York State and in the hundred largest cities throughout the United States, and on suggestions secured from experts in the various subjects. Modifications to meet local conditions will often be desirable, of course, as it

is obviously impossible to draft a simple ordinance which will meet the needs of all cities regardless of size, character of inhabitants and charter limitations. The Bureau of Municipal Information endeavors, however, to make available comprehensive model ordinances embodying the best regulations found in existing ordinances, consolidating these regulations in such form that any city may adopt all or any part thereof according to its local requirements and limitations.

**EDITORIAL NOTE.**—In reply to an inquiry from THE AMERICAN CITY as to the availability of these ordinances for cities outside of New York State, the New York State Bureau of Municipal Information (25 Washington Avenue, Albany, N. Y.), writes:

"It will be impossible for us to furnish copies of these ordinances to all who desire them, as they are prepared especially for the cities of New York State. However, whenever we receive requests from city officials in the United States who desire to use these ordinances for their own city, we endeavor to serve them with copies. For institutions and libraries which simply desire these ordinances to be filed for reference purposes, we cannot supply copies. So, in any notice regarding these ordinances you might state that they are not available for general and wide distribution."

# Rules for Street Grades, Building Restrictions and Submission of Plans

AS ADOPTED BY CITY PLANNING COMMISSION OF READING, PA.

## Rules for Laying Out Grades of Streets

**NOTE:** The following rules shall apply to all conditions encountered in the laying out of streets that come within the jurisdiction of the City Planning Commission, except where topographical conditions greatly interfere with the carrying out of these rules; in such cases the City Planning Commission may modify any of the rules. The rule for laying out curb radii at street intersections and angles, as adopted by the Commission, shall be adhered to.

## DEFINITIONS

A *street* shall mean a highway, road, avenue, boulevard, lane or alley embracing roadway, sidewalk, and parking spaces.

The *building line* shall be considered as the line limiting the width of the public street and not the house line in a case where there is a reserve line.

*Grade* shall mean the fall and rise in a street measured longitudinally.

*Slope* shall mean the fall or rise in a sidewalk or roadway measured transversely.

## RULES

**RULE 1**—All grades shall be determined from the intersection of building lines or their tangents.

**RULE 2**—All grades and slopes shall be designated in decimal parts of a foot fall per foot of length. Where an arrow is used to indicate the direction of the grade, it shall always point down grade.

**RULE 3**—The minimum grade along the length of a street shall be .0075, and the minimum grade of curbs at and adjacent to intersections and angles shall be .005. The maximum grade on streets likely to become main arteries of travel shall be .06, and on streets of less importance shall be .08.

**RULE 4**—In order to reduce grades, the grade of streets shall be established so that depressions will be filled in, and summits cut down, to a reasonable extent; as may be determined by the City Planning Commission.

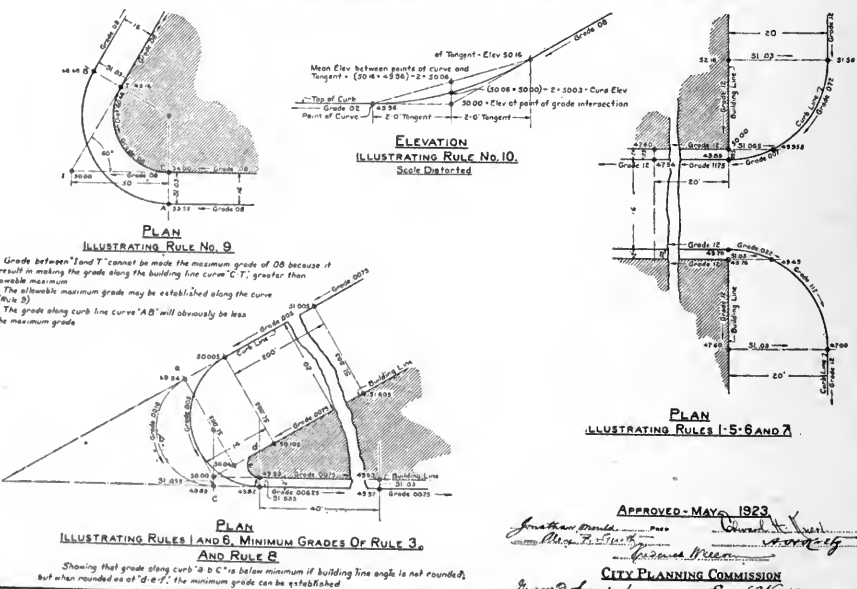
**RULE 5**—Wherever a slope is necessary or desirable from one side of a street to the opposite side, it shall not be less than .005, nor more than .012, figured between building lines.

CP-R3

## ILLUSTRATION OF APPLICATION OF RULES FOR LAYING OUT GRADES OF STREETS

AS ADOPTED BY

CITY PLANNING COMMISSION OF READING, PENNA.



**RULE 6**—The slopes of sidewalks measured at right angles to building lines shall be uniformly .03, except within the limits of the curved portions of the sidewalk, where, when necessary, the grades may be increased to a maximum of .055 and reduced to a minimum of .005. The normal slope of .03 shall be reached again, where possible, within the limits of the curved portions of the sidewalk, and where not possible it shall be met at a distance of not less than one nor more than two times the width of the street by means of a break in the curb line. The slopes of sidewalks will also be warped slightly at certain vertical curves.

**RULE 7**—Where a break of grade is made along the building and curb line on one side of a street, a corresponding break shall be made on the opposite side of such building and curb line, unless its omission will conform to all other pertinent rules.

**RULE 8**—Where the proper drainage, around angular building line intersections by means of permissible grade variations of sidewalks, cannot be secured, the building line intersections shall be sufficiently rounded.

**RULE 9**—Breaks in grades shall be placed at points of curve, points of tangent or centers of curves at building lines, wherever necessary, to keep the building line grade (along the arc of its curve) and the curb line grade (along the arc of its curve) within the maximum and minimum allowable grades.

**RULE 10**—Vertical curves shall be put in at breaks in grades at curbs when the difference between the intersecting grades is over .03.

Said curves shall have 2 feet tangents and shall have elevations at intersections midway between the intersection elevation and a mean between the elevations of the points of curves and tangents.

## Rules Governing Restrictions in Layouts of Residential Districts

**RULE 1A**—No building shall be erected on any part of a property within five feet of the property line, except in case of semi-detached houses, but no building or part thereof shall be erected on any part of the property shown on the plan nearer than ten feet to any other building.

RULE 2A—No building or part thereof shall be erected on any property beyond the reserve lines shown on the plan.

## Rules Governing the Preparation and Submission of Plans of Building Lots for Approval

RULE 1B—Streets and alleys shall have widths of roadway and sidewalks clearly marked.

RULE 2B—Street names shall not conflict with the names of any streets now laid out within the jurisdiction of the Commission.

RULE 3B—All block distances and all lot dimensions shall be clearly marked.

RULE 4B—All angles of streets and lots and all radii as well as tangent distances of curves shall be indicated.

**RULE 5B—**Corner stones at least 4 inches

C.P.-Rf

CURB RADII AT STREET INTERSECTIONS AND ANGLES SUGGESTED BY CITY PLANNING COMMISSION

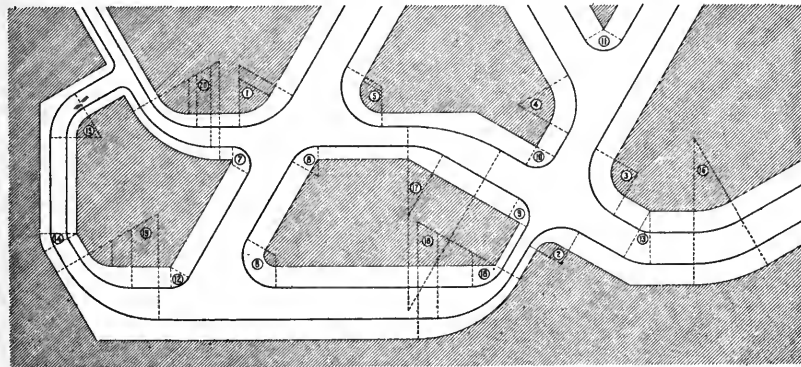
AN ORDINANCE EMBODYING THESE PROVISIONS WAS PASSED BY COUNCIL OF CITY OF READING - FEBRUARY 7, 1923.

***RULE***

*All New Curbs Set And All Curbs Reset At Intersections Or Projecting Angles Of Streets Shall Be Set Or Reset To The Lines Of Circular Arcs Tangent To Curb Lines*

Each Circular Arc Shall Have The Greatest Radius Possible That Will Not Reduce The Width Of The Sidewalk Or Roadway at Any Point To Less Than That Of The Sidewalk Or Roadway Having The Lesser Width

ILLUSTRATION OF APPLICATION OF RULE  
FIGURES ARE INDEX TO SKETCH BELOW

[illegible]

Approved As Modified - February, 1922

James H. Mumford, Mayor  
City Planning Commission  
Sergeant E. Langdon, Secy.  
James F. Keeling, Com.

square and 30 inches long shall be securely imbedded at all angles and intersections of streets, with range lines, angles, elevations, and stone distances clearly marked.

RULE 6B—Elevations and grades of all streets shall be clearly indicated.

RULE 7B—All grades shall conform to the Rules for Laying Out Grades of Streets, as adopted by the City Planning Commission.

RULE 8B—Where applicable the Rules Governing Restrictions in Layouts of Residential Districts, as adopted by the City Planning Commission, shall be indicated on and made part of the plan.

RULE 9B—All curb radii shall conform to the standard adopted by the City Planning Commission.

RULE 10B—Where park or playground areas are shown, they shall be marked as being dedicated to public use.

RULE 11B—The names of the development and the owner shall be prominently shown.

RULE 12B—The points of the compass and the scale of the drawing shall be shown.

RULE 13B—Space shall be provided for the signatures of the five members of the City Planning Commission and the Secretary, also

for the date of approval.

RULE 14B—Plans for approval shall be in duplicate, printed upon cloth, one copy being for the files of the Commission.

RULE 15B—Plans of a proposed layout submitted to the Secretary of the Commission, shall be accompanied by a written application asking that the same be approved, in which application shall be set forth the owners and developers of the tract and the name and location thereof, and said written application shall be signed by the owners and developers thereof.

RULE 16B—The Secretary, upon receipt of plans, shall immediately notify the President of the Commission, who shall fix a date for a public hearing thereon, which public hearing shall be held not earlier than fifteen days nor later than thirty days after the receipt of the application.

RULE 17B—In the period between the filing of the plan with the Secretary and the date of the public hearing thereon, the Secretary, at the expense of the owners and developers of said plan, shall give notice of said public hearing on their application for approval in at least two newspapers published in the city of Reading once a week for two weeks.

## The Tax-Paying Goose Has Become an Owl

“A FAMOUS French philosopher once said that taxation was the art of plucking the greatest possible number of feathers from a goose with the minimum amount of squawking. If this Frenchman were alive to-day, he would scarcely recognize the tax-paying goose of his epigram. In the course of the evolution which has taken place, it has become a much wiser bird—more like an owl than a goose. As he has acquired intelligence, he has largely put a stop to that type of taxation which consists of a surreptitious snatching of feathers. He now submits to the plucking only after his consent has been formally secured, and normally he squawks only when he feels that he is not getting his money's worth or when he suspects that some other bird is escaping with less severe treatment than he is receiving. Consequently, the problem of taxation is very different in its character from what it formerly was. It no longer consists of merely evolving some clever method of snatching a handful of feathers from some spot hitherto overlooked. It involves a careful explanation to the taxpayer, a demonstration that the sacrifice will bring a commensurate return,

and an assurance that the other taxpayers are doing their just share as measured by the standards of equity commonly accepted in the community.

“In spite of our clumsy and inadequate fiscal and political machinery, we have found it desirable to expand our public expenditures steadily, and, as means of communication and other administrative aids increase in quality, there is no rational reason for believing that the number of things which can be best done collectively, and, of course, their cost, should not continue to increase. *At any one time we should do publicly all those things which we can best do publicly.* If greater returns can be obtained by using a dollar's worth of economic effort in collective public action than can be obtained by leaving it in the pockets of people to be privately spent, it is merely common sense—not socialism—to spend that dollar collectively.”

ACKNOWLEDGMENT.—From an address on “The Tax Problem in Relation to the Financing of Public Education,” by Robert Murray Haig, Professor, School of Business, Columbia University, before the Department of Superintendence, National Education Association,

### PUBLIC OPINION AND CIVIC BEAUTY

In the progress of modern civilization the time is rapidly approaching, if it has not already come, when a city will be deemed recreant to its duty which is interested only in conserving the material welfare of its people by safeguarding their property interests, preserving their lives and health and affording them opportunities for practical education. . . . At the present one may not offend another's sense of hearing or smell by the creation of a nuisance, but there is no limit upon the affronts which may be inflicted upon the sense of sight. It is my belief, however, that the question is not whether, but when, the courts, on this subject, will catch step with those of you who are seeking to preserve from desecration the cities and beauty-spots of this America of ours. The greater the force of public opinion upon this subject, the sooner will that time come. —From an address on “Art and the Municipality,” by Walter Armstrong, City Attorney, Memphis, Tenn.

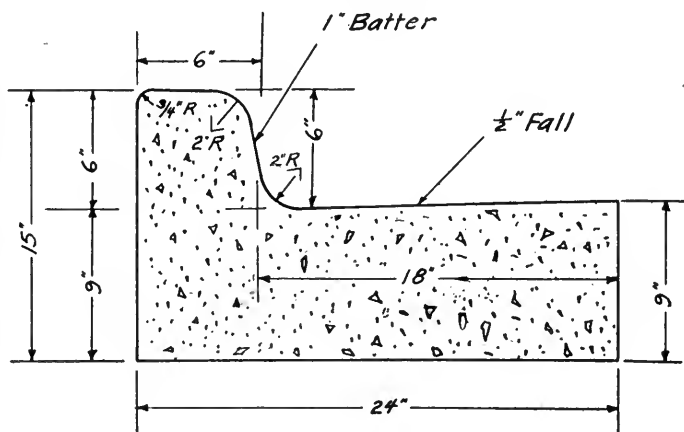
# Concrete Curb Construction in Wayne County, Michigan

Straight Steel Curb Forms Used on Curve of Long Radius

By Edward N. Hines

Chairman, Board of County Road Commissioners, Wayne County, Mich.

ON Starkweather Avenue in the village of Plymouth, Mich., extending from Main Street to the northerly village limits and connecting at the latter point with the highway to the village of Northville, the County Road Commissioners of Wayne County installed 5,981 lineal feet of standard combined curb and gutter. The accompanying sketch shows a section of this standard combined curb and gutter, which is 24 inches wide at the base, and 9 inches thick in the horizontal gutter section,



*5.17 c.y. per 100 lin ft.*

STANDARD COMBINED CURB AND GUTTER USED IN WAYNE COUNTY, MICHIGAN



STEEL CURB FORMS IN PLACE, SHOWING FULL CURVATURE OBTAINED WITH STRAIGHT FORMS IN WAYNE COUNTY, MICH.

with a curb section 6 inches thick and 6 inches high.

The face of the curb section has a 1-inch batter, and the top edge of the curb and the edge of the gutter are rounded off with a 2-inch radius. This finish on the face of the curb and the gutter is considered the best form of construction as a protection to automobiles, as it undoubtedly will cause less damage to tires when cars scrape along the curb when stopping or starting. This curb and gutter section is also easier to clean when sweeping the streets.

The forms used were special steel Blaw-Knox forms in 5-foot sections. When the concrete was poured, the sections were separated by steel templets about 1/8-inch thickness. These templets were allowed to remain in place until the concrete had set sufficiently to hold its shape and then were removed while the steel forms were still in place. Before being set in position, the templets were covered with a thin coat of crude oil to permit easy removal.

It is believed that this particular stretch of concrete curb includes the longest curve that has ever been successfully installed with straight steel curb forms. The photograph shows the smoothness of the curb as

it went over a hill. These forms were bought through the Good Roads Supply Company, of Detroit, Mich.

The following table shows the quantities of cement, sand and gravel used, the total cost of the forms, and the cost per lineal foot:

QUANTITIES AND COST	
541 barrels of cement.....	\$1,287.58
210 tons of sand.....	273.00
377 tons of gravel.....	527.80
Unloading and hauling these materials....	217.95
Total cost of materials.....	\$2,306.33
Total labor cost of form work, mixing and placing, and backfilling.....	1,825.20
Grand total cost.....	\$4,131.53
Unit cost per lineal foot: material, \$0.39; labor, \$0.31; total, \$0.70 per lineal foot.	

# A New Source of Income for Small Water-Works

By Howard A. Dill

Superintendent, Richmond City Water-Works, Richmond, Ind.

WATER companies have the advantage over telephone, gas, electric and railroad utilities in regard to competition. For that reason, less effort is generally made by water utilities to advertise their product and secure additional consumers, or to increase the consumption of existing consumers. Because water is a necessity and there is no substitute, is no reason why water utilities cannot obtain additional revenue by a well-planned campaign of advertising and salesmanship. Any superintendent can cite cases of properties which are supplied with well water, instead of by the water-mains in front of such properties. Advertising and personal contact would doubtless convince many persons of the desirability of using city water that is protected by laboratory tests, that can be had by opening a faucet, and that is obtained from an unfailing source of supply—all at a cost of a few cents a day. Baths and toilets would be added in many cases if an effort were made by the utility to show customers the convenience and sanitary advantages of such equipment. Sprinkling use could be increased by educating the consumer to the effect of, and increased value from, a beautifully kept lawn or a quantity of shrubbery effectively placed about the house,

Water companies could well afford to make a survey to locate properties using well water, and then sell the advantages of city water to the owners of such properties. Gas and electric companies have demonstrations and exhibitions of their products, and sell equipment using them.

The advisability and desirability of selling material and fixtures by water companies to customers at or near cost is a debatable question. There would be objections, of course, on the part of dealers and plumbers, but such a method would undoubtedly encourage the installation of such fixtures. The plumbers, I believe, would be benefited, as the installations would be made by them.

In large cities where city water only is used, a possible increase in revenues would be by such methods.

In small cities, however, and perhaps in some cases in large cities, residences are supplied from cisterns, collecting rain water from the roofs. This requires the additional equipment of a hand pump or of a pressure or gravity tank and an electric motor and pump. By this means, softer water is obtained for bath, washstand, kitchen and laundry use. It is from this class that additional revenue can be secured. Cisterns are expensive to construct if of a

size to adequately meet the demand. They give trouble from leakage and require frequent cleaning. The electric motor gets out of order and depreciates, and there is also the item of pipe installation.

The Zeolite method of softening water is not new, and is used by laundries, hotels, apartment houses and steam boilers. No additional revenue would be derived from such consumers, as city water would be used by them with or without a softener.

From residents using cistern water, however, there is a decided possibility of increased receipts. A campaign could be made demonstrating the advantages of Zeolite softened water over cistern water, such as its greater softness, its cleanliness, and its reliability of supply.

In the case of new residences, it can be shown that the cost of a Zeolite softener is little, if any, more than the equipment for cistern water. The operating cost of the former is nominal, the salt used costing from \$5 to \$10 a year. There is no depreciation, the time necessary in operating is very small, and the method is simple. There are several makes of softeners, resulting in closer competition and reduced cost.

A cistern and filter of 80 barrels capacity and an electric motor will cost about \$250, as compared with the same amount for a softener to supply a family of four with one bath and laundry. For a family of six, a cistern of 150 barrels, motor, etc., would cost about \$350, a softener \$335. For a family of eight or more, two 150-barrel cisterns, motor, etc., would cost about \$585, a softener about \$500.

### Value of Advertising in Richmond

Richmond, Ind., has a population of about 30,000. The water company is a private one, its supply being secured from springs and infiltration galleries, naturally filtered through gravel strata. The hardness of the water is 20 to 22. Most of the residences occupied by the owners have cisterns, the better class of which use electric or water motors to pump the rain water. Electric motors are gradually superseding the water motor, thus reducing the consumption of city water. Within the past two years, probably twenty new houses have installed Zeolite softeners, several of these through the efforts of the water company.

Advertising is being used, and prospective customers are being shown the comparative advantages and costs of the Zeolite and the cistern equipment. The company does not recommend a particular make of softener, but gives the prospect the names of the manufacturers or agents.

The writer installed a softener in December, 1921. The water used the first year for house use and back-washing the softener amounted to 37,500 gallons, and the salt used was 600 pounds. If a cistern had been used, the water company would have lost the revenue from the consumption given above.

This is an instance of one possible source of revenue, which we believe is capable of development.

ACKNOWLEDGMENT.—From a paper read before the annual convention of the American Water Works Association.

## Tar Macadam Pavements in Cambridge, Mass.

**A**BOUT 40 per cent of all the pavements in Cambridge, Mass., are of the general type called "tar macadam"—using about 1½ gallons per square yard supplied in two coats, according to Lewis M. Hastings, City Engineer, Cambridge, Mass., in the *Journal of the Boston Society of Civil Engineers*.

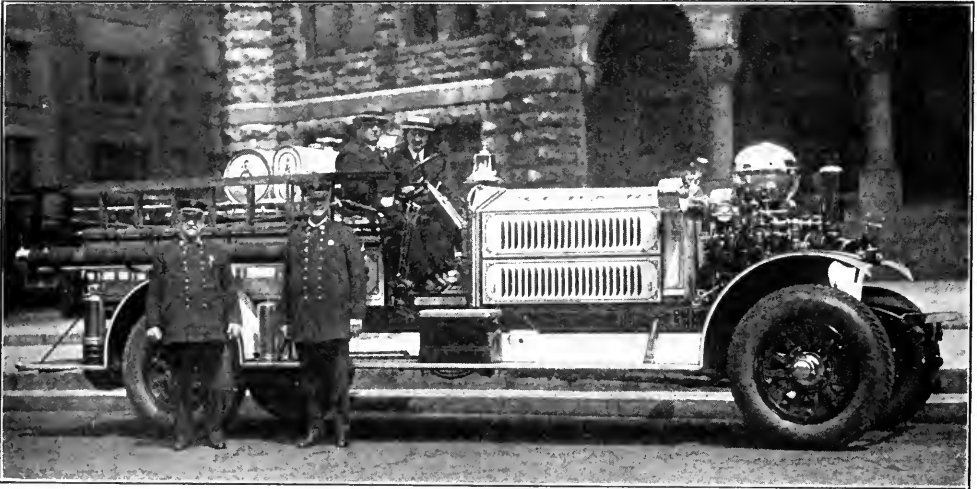
For new construction using new cracked stone 4 to 6 inches thick, the average cost of this type of paving is about \$1.50 per square yard. Applied to an old macadam street with 3½ to 4 inches of new stone rolled into the old stone, the cost is about \$1 per square yard. Applied to residential

and light business streets and given a yearly cost of Tarvia B or similar bituminous compound and sand, this type of pavement gives promise of long life.

Probably Harvard Street, from Prospect Street to Massachusetts Avenue at Quincy Square, is as good an example of this type of pavement as there is in Cambridge. The traffic is a mixture of business and pleasure cars, sometimes heavy and sometimes at night very swift. Most of this pavement was built in 1908, or about 15 years ago, and has never received anything but the surface treatment described above, at a cost of about one cent per square yard annually.

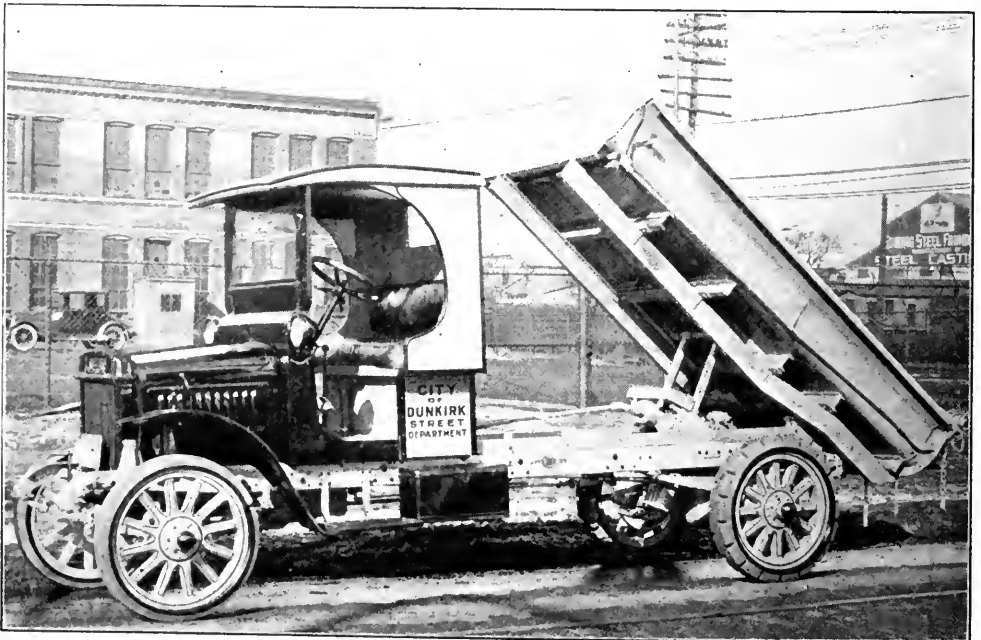


# Motor Trucks in the Service of Fire and Street Departments

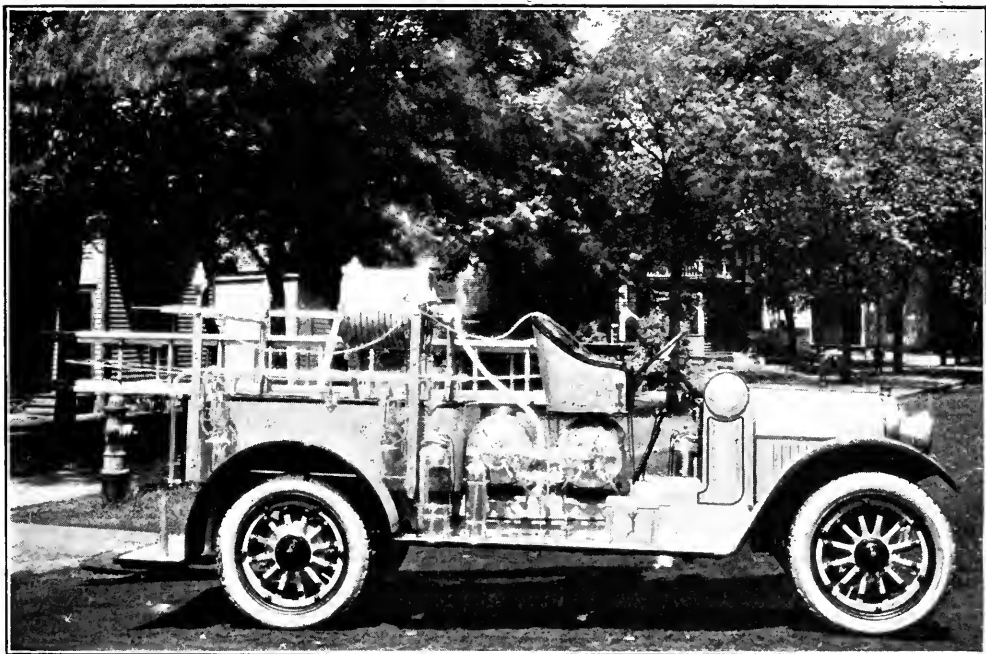


ENGINE NO. 12, A RECENT ADDITION TO THE SYRACUSE, N. Y., FIRE DEPARTMENT

This Ahrens-Fox machine, which is to have quarters at the new fire station, has a capacity of 1,300 gallons per minute, and also booster equipment. It runs to the business and high-value districts on the first alarm. Recent tests made in Syracuse show that it is easily able to handle a water-tower with stacks and two turrets in operation. It carries four-way and two-way Eastman deluge sets as part of its regular equipment. The engine, equipped with pneumatic tires, was driven overland from Cincinnati to try out the new gear drive, which met every test. We are indebted to Charles S. Coombs, Fire Chief, Syracuse, N. Y., for this photograph and information

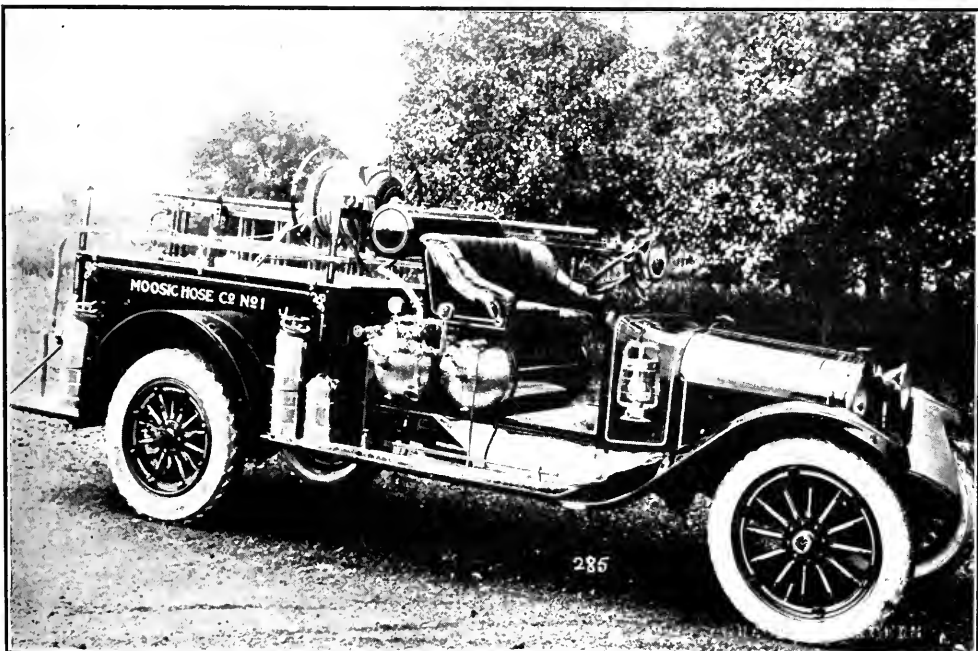


AN ATTERBURY 1 1/2-TON TRUCK EQUIPPED WITH 1 1/2-YARD HEEL BODY AND HYDRAULIC HOIST, USED BY THE STREET DEPARTMENT OF DUNKIRK, N. Y., FOR GENERAL UTILITY WORK



**NORTHERN DOUBLE TANK COMBINATION CHEMICAL AND HOSE INSTALLED ON A REO SPEED WAGON IN THE SERVICE OF THE ARLINGTON, TEXAS, FIRE DEPARTMENT**

This is one of the two outfits which the city of Arlington bought. The second outfit has a Northern rotary pump installed on it, and the city is going to put the old hose body and chemical tank on the second chassis

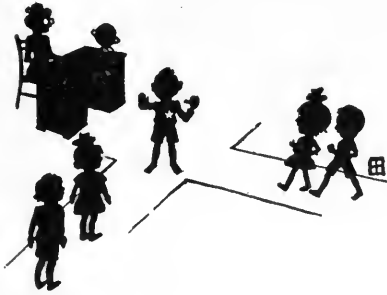


**GRAHAM BROTHERS TRUCK EQUIPPED WITH FOAMITE-CHILDS CHEMICAL FIRE APPARATUS, IN USE BY MOOSIC HOSE COMPANY NO. 1, MOOSIC, PA.**

The borough of Moosic is about two miles long, with a number of long, hard hills and very bad roads. The fire trucks have negotiated the hills and bad roads successfully many times since purchased. William Campbell is President and Thomas F. Paterson Fire Chief of Moosic Hose Company No. 1

# Five Ways to Promote Safer Traffic

Suggested by the National Automobile Chamber of Commerce, New York



1. **Safety Education.**—In the schools, and also for adult motorists and pedestrians, so that observance of rules of the road becomes a habit.

2. **Jail for Reckless Drivers.**—There is no room for the careless few who endanger the great majority.



3. **Adequate Playgrounds.**—Children have a right to play. Let certain streets be set aside exclusively for play spaces if existing playgrounds are not sufficient.

4. **Better Traffic Regulation.**—In general, traffic regulation is being well handled, but there is a lack of uniformity between local laws which is often confusing. Speed traps are fortunately less frequent than formerly. They are harmful, as they create an atmosphere of unfair tactics. The aim of traffic control is to *prevent* the offense of careless driving, and the best way to do that is to have the officer out on the roads where all can see him.



5. **City Planning.**—Most of our city streets were laid out in the days of the horse-drawn vehicle, and were built in days of smaller urban population. Congestion has reached a point where new boulevards and parking spaces are required in many communities.

# How Boy Scouts Are Cooperating with Fire Departments



By James E. West

Chief Scout Executive, Boy Scouts of America

THE boy and the fire engine have always been inevitable accompaniments, like turkey and cranberry sauce. They seem to arrive on the scene simultaneously, and thereafter the boy is forever bobbing up at unexpected points, at the hazard of his own safety and of the work of the fire department.

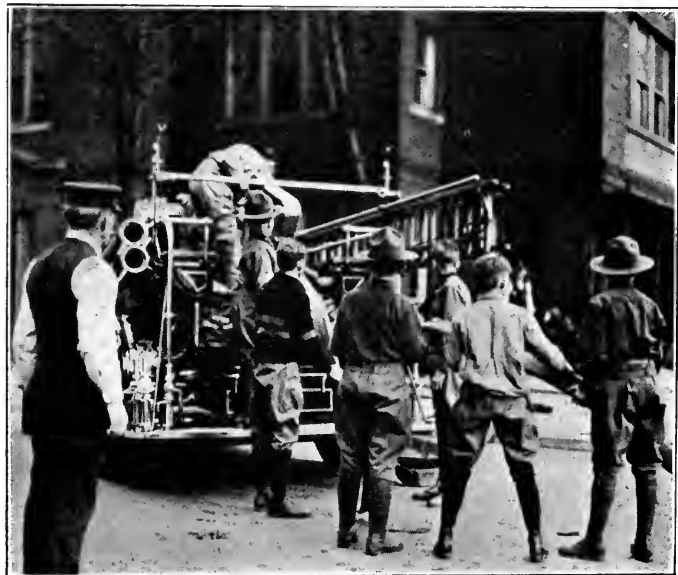
Not so long ago, some thoughtful persons conceived the idea of harnessing this excess of energy and directing it to a useful purpose, making the boy an asset instead of a menace in time of danger. The result is the Boy Scout Firemen. The Firemanship Units—of which every Boy Scout Council in the United States may have one—are officially aids to the fire departments in many of our large cities; their services in smaller communities where fire-fighting facilities are limited can hardly be estimated.

Boy Scout Firemen are especially trained in the principles of firemanship and safety first. Their slogan is "Fight the fire fiend"; their chief is the chief of the city fire department; their purpose, as outlined in their constitution, is "to promote the safety of life and property by the prevention of fires and accidents." Many grizzled veterans of the fire departments give courses in firemanship to these eager and wide-eyed Boy Scouts. The lads pass an examination at the end of the term, and receive a metal badge, a five-pointed star, as a reward. What boy would not attend school all summer, if necessary, for the joy of receiving a fireman's badge?

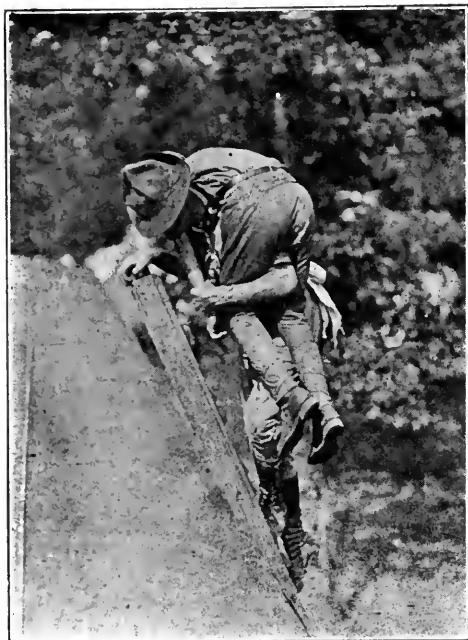
Their primary duty is to stop the fire before it happens: making sure that Mother doesn't clean her gloves with gasoline when the lamp is lighted, and that she does not store her oiled dust mop out of its tin container; seeing that Dad doesn't throw his matches near the waste-basket, and that he doesn't pile the hot ashes in the wooden ash-box; getting a screen for the fireplace, so the children won't fall in; and inspecting the electric lights. Safety begins at home.

Then, the community. Are the fire-escapes clear of obstacles? Are the hallways in the buildings free from rubbish? Are the fire extinguishers well placed and adequate? The slim khaki-clad lad who tactfully calls the landlord's attention to his shortcomings is a Scout Fireman. This survey is a regular part of his training. How many fires never happened because these boys saw the danger in time?

Many a panic never occurred because a Boy Scout prevented it. A crowded



"LEARNING BY DOING" IS THE SCOUT WAY



#### MANY ACTS OF HEROISM ARE CREDITED TO SCOUTS AS FIREMEN

In a number of cities, Scouts, after a course of instruction, are awarded a special firemanship badge. Among the 144,268 merit badges issued in 1922, 9,574 were for firemanship, this subject standing third in popularity among the merit badge subjects

theater; a smell of smoke; a cry of fire, and a crowd rising in alarm. In cases of this kind, a few calm people can prevent a panic, just as a few excited persons can turn it into a mob. The Boy Scouts are trained to meet an emergency such as this, and they have faithfully fulfilled their duty.

The Scout Fireman is not expected to work behind the fire lines. His task is to keep the crowd in order, give first aid if necessary, perform police duty, and otherwise assist the firemen. But emergencies do arise. Here are some of the things every Boy Scout who studies the Firemanship Merit Badge pamphlet knows:

The use of hose—unrolling, joining-up, connecting to hydrant, use of nozzle, etc.

The use of escapes, ladders and chutes, and the location of exits in buildings which he frequents.

How to improvise ropes and net.

What to do in case of panic; the fireman's lift and drag, and how to work in fumes.

The use of fire extinguishers; how to rescue animals; how to save property; how to organize a bucket brigade, and how to aid the police in keeping back crowds.

The Fire Chief of Spokane, Wash., said

last winter: "I wish to commend the Boy Scouts for the valuable work they have performed. The effective work done by these energetic and enthusiastic Scout Firemen has been an important factor in reducing the fire hazards and fire losses."

A Scout in Washington, D. C., recently saved an old man who was paralyzed from burning to death. A feeble cry called his attention to the house, and he ran in and up to the second floor where the old man lived. The room was full of smoke and licking flames. An overturned oil stove told the story. The Scout called a brother Scout who was near. The old man was too heavy for them to lift, so they did what they could to check the fire. Racing to the kitchen, they secured pans, which they filled with water from the bathroom, and, crawling on the floor to avoid being overcome by smoke, they fought the flames. Finally, when the fire was extinguished, the Scouts completed their good turn by reviving the old man and administering first aid.

One Scout showed presence of mind recently when he saw flames pouring from a neighbor's kitchen, where the oil stove had been overturned. Near-by stood the gasoline and kerosene containers plainly marked. The Scout held his breath and dived in. A moment more and he was out in the yard, and the danger of an explosion was over, but the fire gathered headway. A crowd of people collected, but it was the Scout who had wit enough to run for a long ladder, organize a bucket brigade and save the property.

Woodbury, N. Y., Troop 1 had a recent example of the necessity for Scout preparedness during work or play. While fourteen boys were returning from a hike, they observed smoke coming out of a chimney of a building on a large estate. The boys hastened to the house, scaled the roof and began to extinguish the blaze, which was coming from a defective flue. The Fire Department arrived promptly, but the Scouts had already put out the fire.

Scout outposts on guard near Cleveland one night suddenly saw flames leaping from a reservation near-by. When the 200 Scouts from the camp reached the scene, the whole countryside was lighted by the conflagration, and the whole seventy acres of woods was menaced. The boys tore boards from the fence and beat out the

flames. They fought hard and succeeded in saving the timber.

Another important service that Scouts render is in fighting forest fires. One hundred meritorious service medals were awarded by the State Department of Forestry in Pennsylvania to Boy Scouts for conspicuous service in forest protection, during the year 1922. In Berks County alone, three fire brigades have been formed. Two boys are equipped with compressed air extinguishers, two with axes and eight with rakes. Volunteer fire watchers keep a constant lookout at various points during the dry season.

The Boy Scouts of Reading Park recently fought a particularly stubborn forest fire. In this section there are thousands of dead chestnut trees in the woods. If fire gets under the bark of these, it creeps to the top and burns for hours. With their faces protected by wet handkerchiefs, the boys fought flames higher than their heads, and pushed through a wall of smoke. They got control of the fire with their poles and sandbags. Afterwards came the important clean-up duty, stamping out the last sparks and embers. Scout leaders remained on guard duty throughout the night.

The Chief Forester of the U. S. Government said that the Butte, Mont., Scouts "put on the best forest fire prevention campaign in the United States."

There is another aspect of this Boy Scout training that will occur to the thoughtful observer. The boys of to-day are the men of to-morrow. The Boy Scouts will come into their responsibilities with a practical knowledge of municipal and national affairs. Every Scout trained now will not only be a living advertisement for the principles of fire prevention and safety first, but will feel it very distinctly his duty to see that the fire department functions adequately. The man who, as a boy, superintended the fire-escapes and hallways of his neighborhood will not allow the fire department to be handicapped by politics or insufficient funds. He will do more than require the latest and most scientific equipment; he will know personally why it is best adapted for his particular community.

Judge J. D. Fallon of San Francisco remarked recently, "The stability of a government depends upon the stability of the character of its citizens, and it is the stability of the character of its future citizens that the Scout organization is working on."



IN SCORES OF INSTANCES SCOUTS HAVE PROVED THEMSELVES TO BE OF VERY GREAT AID NOT ONLY IN PREVENTING BUT ALSO IN PUTTING OUT FOREST FIRES



## Chamber of Commerce Activities in Public Affairs

### *"Welcome" Signs That Are Different*

NEW ROCHELLE, N. Y.—Unique and artistic signs at the entrances to this City of the Huguenots are the result of hearty co-operation which the New Rochelle Chamber of Commerce has had from a progressive municipal government and from a colony of nationally famous artists, illustrators and cartoonists, most of whom are members of the organization and all of whom are proud of their city, its history, its institutions and its natural beauty.

The Chamber of Commerce has been waging war on the bill-board blight and has an active committee to guard against the encroachment of such eyesores; and the municipal government has helped by a zoning ordinance and a building code that prevent the erection of any more bill-boards in zoned residential locations. Naturally, therefore, the Chamber's Directors sought the aid of the artists in planning what are commonly known as "welcome" signs. They did not want, moreover, any boastful or hackneyed slogans to meet the stranger's eyes as he entered the gates of the city.

The colony of artists entered into the spirit of the idea, and so did Mayor Harry Scott, who is serving as chairman of the Chamber's committee. The result was that after two years' effort, seven of these approach signs now grace as many main arteries of traffic at the territorial limits and three more are about to be erected. The only expense connected with the undertaking was that of material—ornamental reinforced concrete posts standing 14 feet above ground and sunk 4 feet in the ground, and all electrically lighted, and the steel cut signs themselves. These items represent an outlay of approximately \$5,000, which was cheerfully borne by the city.

As shown in the illustration, Edward Penfield's is a silhouette picturing a stage-coach with its prancing horses, and as such

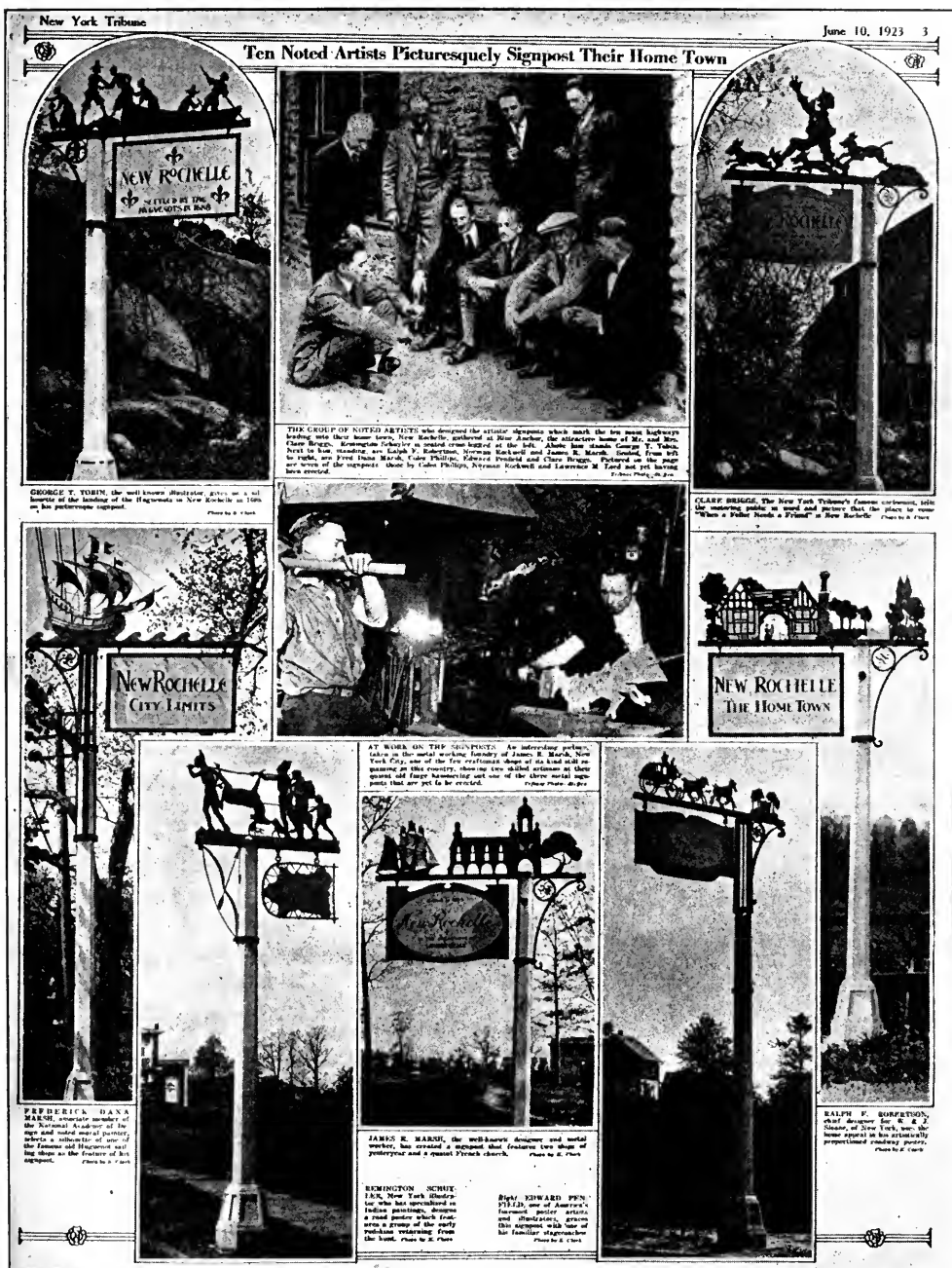
is symbolical of Colonial days. It is appropriately placed on the Boston Post Road. Fred Dana Marsh's contribution represents a Huguenot ship in full sail and color, and the sign tells the traveler that the City of the Huguenots was founded in 1688. George T. Tobin's idea was something also representative of the city's earliest days; his design is a silhouette picturing the landing of the Huguenots. James R. Marsh's offering is a reproduction of the Gate of LaRochelle, showing two sailing vessels off the port of LaRochelle, and the color work adds greatly to its general effect.

Remington Schuyler, nephew of Frederick Remington, designed the sign standing on the Post Road where it was crossed by the old trail of the Sinoway Indians. His is "The Indians Returning from the Deer Hunt" and is most lifelike in its brilliant coloring. Clare Briggs, the cartoonist who immortalizes "Skin-nay" in "When a Feller Needs a Friend," has done one of his characteristic sketches. The traveler learns that when a "feller" needs a friend, New Rochelle is the place for him. Ralph F. Robertson symbolizes New Rochelle as a high-class suburban residential community.

The contributions of Coles Phillips and Norman Rockwell treat of the Revolutionary period of New Rochelle's history. As the former's is to be placed at a spot trod by General Howe with his Hessians on the way to White Plains, Phillips shows the British Lord leading his hired Hanoverians on the march. Rockwell depicts another event in the story of the Revolution. These two and that of Lawrence Loeb, who also designed the ornate concrete posts, are not yet placed in position. Loeb's is modern in treatment, and he pictures New Rochelle as an ideal suburban residential community. The wrought-iron and steel work for all the signs was done in the shop of James R. Marsh.

RALPH MORROW,  
Secretary, New Rochelle Chamber of Commerce.





From the Graphic Section of the New York Tribune for June 10, 1923

#### LEFT

Top—Silhouette of the landing of the Huguenots in New Rochelle in 1688, by George T. Tobin

Middle—One of the famous old Huguenot sailing ships, by Fred Dana Marsh

Bottom—Group of the early redskins returning from the hunt, by Remington Schuyler

#### CENTER

Top—The artists who designed the signposts which mark the ten main highways leading into their home town, New Rochelle

Middle—At work on the signposts, in the foundry of James R. Marsh, New York City

Bottom—Two old-time ships and a quaint French church, by James R. Marsh

#### RIGHT

Top—"The Place to Come—New Rochelle—When a Feller Needs a Friend," by Clara Briggs

Middle—A design expressing the appeal of "The Home Town," by Ralph F. Robertson.

Bottom—An old stage-coach, by Edward Penfield



GARDNER CHILDREN IN LINE TO SEE THE FILM "WHY ARE WE CARELESS?"

### **Safety Film Shown to 3,000 School Children**

GARDNER, MASS.—The Gardner Chamber of Commerce, working in conjunction with the local branch of the Safe Roads Federation, secured from the Massachusetts Safety Council the educational film, "Why Are We Careless?", made arrangements to have it exhibited at one of the local theaters, and invited the school children. So great was the response at the first showing, when over 1,200 children witnessed the picture, that the committee found it necessary to retain the theater for three instead of two performances.

During the showing of this film, over 3,000 children were impressed with the necessity of being more careful, and the message delivered by Lewis E. MacBrayne, of Boston, who spoke to the youngsters for about ten minutes in advance of the picture, drove home in a very effective manner the elementary principles of safety.

The Chamber had tickets printed and distributed to the children of the various schools, and also supplied banners bearing suitable wording. These banners were carried by the children while parading from the various schools to the theater.

The expense of the three performances was negligible, in the opinion of the Board of Directors of the Chamber of Commerce, if the saving of one life or the prevention of a single accident results.

F. L. BODY,  
Manager, Gardner Chamber of Commerce.

### **Memorial Elms**

HAMILTON, ONT.—From the city limits of Hamilton easterly to a point on the Niagara Falls Provincial Highway, one thousand American elms were planted this spring as a Memorial Row to the soldier heroes of Hamilton and vicinity.

The plans for this memorial were originally formulated by the Beautification Committee of the Hamilton Chamber of Commerce, with the endorsement of the Board of Directors of the Chamber. The necessary funds were raised by popular subscription, and each subscriber was asked to suggest the name of a soldier to be inscribed on a tablet at each end of the avenue. The cooperation of the Department of Public Highways was secured, the planting being supervised by Highway Forester H. J. Moore.

The planting of the first trees in the memorial row was made the occasion of an appropriate ceremony.

F. P. HEALEY,  
Managing Secretary, Hamilton Chamber of Commerce.

Other items of Chamber of Commerce Activities in Public Affairs appear under the heading of "Photographic Histories of Public Improvements," on pages 111 to 115 of this issue.

# Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York, 233 Broadway, New York, and from other sources

## Recent Enabling Acts and Ordinances

**M**ONTH by month, recent zoning enabling acts and zoning ordinances will be noted in these columns, together with any earlier acts and ordinances heretofore omitted. The additions to our lists this month, with date of adoption of the act or ordinance, are the following:

Colorado, enabling act, April 13, 1923  
 Illinois, amendment of enabling act, authorizing Boards of Appeal, July 1, 1923  
 Decatur, Ill., ordinance, April, 1923  
 Park Ridge, Ill., ordinance, Sept. 12, 1922  
 Topeka, Kans., ordinance passed July 10, 1920  
 North Adams, Mass., ordinance, Sept. 16, 1922  
 Winthrop, Mass., ordinance, August, 1922  
 Long Branch, N. J., ordinance, May 17, 1921  
 Millburn, N. J., ordinance, June 18, 1923  
 Tenafly, N. J., ordinance, May 26, 1922  
 New York, amendment of enabling act for villages, substituting for former law provisions similar to those of standard enabling act

Rye, N. Y., ordinance, Feb. 7, 1923

Utica, N. Y., ordinance, Feb., 1923

Youngstown, Ohio, ordinance, Jan. 29, 1923

An act enabling the city of St. Petersburg to pass zoning ordinances has passed the Florida Legislature. The law goes into effect when ratified by the electors of the city. The referendum has not yet been held.

An act authorizing the county of Nassau to pass zoning regulations was enacted by the last New York Legislature. It will be referred to the voters of the county for approval in 1925.

## Recent Zoning Decisions

*New Jersey.*—Edward F. Merrey, City Counsel of Paterson, in a recent case, has successfully maintained the validity of the zoning ordinance of that city. An attorney attacking the constitutionality of the ordinance applied for a rule to show cause why mandamus should not issue for a permit to alter a dwelling in a residential district into a store. The judge

stayed the writ until application was made to the Zoning Board of the city, and the Board of Public Works, if necessary. No written action was filed, and no order entered, the attorney being allowed to come in on next motion day and inform the justice whether he received relief from the Board of Appeals. Thus the validity of the procedure established by the zoning law and the ordinance was upheld.

*Wisconsin.*—On April 17, 1923, Judge Oscar M. Fritz of the Circuit Court ordered dismissed the suit of Charles Carter against the Building Inspector of Milwaukee, for a writ of mandamus requiring the inspector to issue a building permit for an addition to a dairy plant situated in a residential district. The Milwaukee ordinance does not permit an expansion of this sort of a non-conforming use. There was no written decision, the Court simply issuing an order.

The papers of Edward M. Bassett on "The Present Attitude of Courts towards Zoning" and of Dr. Robert Whitten on "Regional Zoning," presented at the last session of the National Conference on City Planning, held in Baltimore, have been separately printed and may be obtained of the Secretary of the Conference, at 130 East 22nd Street, New York.

The recent Connecticut law entitled "An Act Concerning Zoning in Certain Cities and Towns" was mentioned in our last issue. The communities authorized to proceed under the law are the cities of Bridgeport, Norwalk, Waterbury and Stamford, the town of Stamford without the limits of the city of Stamford, and the towns of Fairchild, Greenwich, Enfield and West Hartford. In ways too numerous to mention, the act differs radically from all zoning laws heretofore enacted in this country. It purports to authorize zoning by height and area, there being no provision with regard to use zoning.

## Realtors and Zoning

The greatest mistake to avoid in zoning is attempting to proceed without the cooperation of the organized real estate interests of the community.

Another serious mistake is for the organized real estate interests to confuse the personal interests of one or two individual realtors with the broad issue of what is for the best interests of their community. I am glad to say that thus far this has not often happened; that, as a rule, in those cities that have been zoned, zoning has had the active support of the organized realtors, who have looked at the question in big, broad, man-fashion and acted solely with regard to conserving the community's interests.

—Lawrence Veiller, before the 1923 Convention of the National Association of Real Estate Boards.



PLAN OF PORTLAND'S WEST SIDE

## Portland Water-Front Development

A Plan, Recently Adopted, Which, Besides Beautifying the Water-Front, Will Help Traffic, Eliminate Fire Hazards and Improve Sanitary Conditions

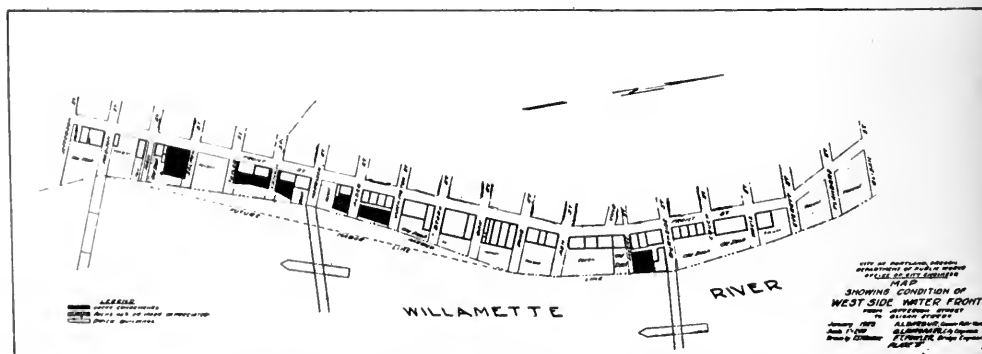
By O. Laugaard

City Engineer, Portland, Ore.

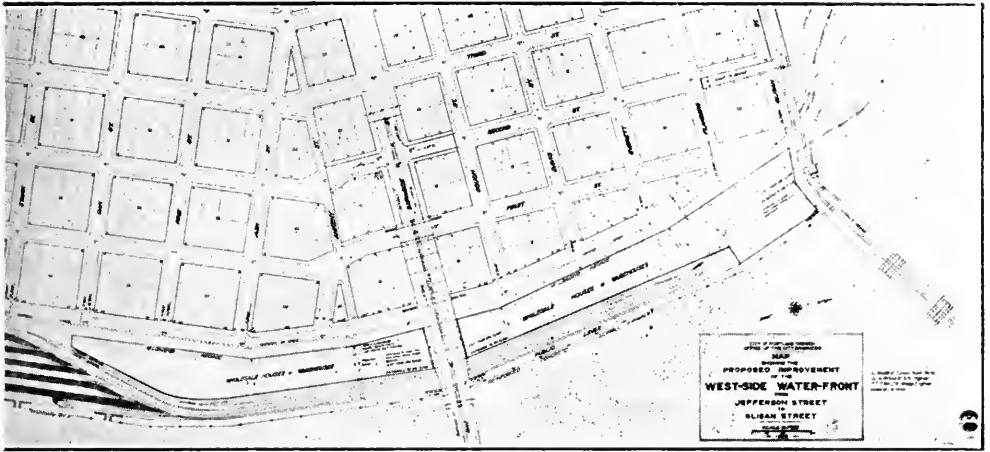
PORTLAND, Oregon, occupies a unique position among the large cities of the United States, in that the Willamette River, a large navigable stream, so divides the heart of the city that very much the larger part of the area, containing about 75 per cent of the population, is on the east side of the river, and 25 per cent of the population, with the chief retail and business district, is on the west side. While

the westbound traffic is more evenly distributed during the entire day, it appears that the great congestion in traffic takes place during the afternoon rush hours between 4:30 and 6:30, when about 25 per cent of the day's traffic crosses the river on five river bridges in an eastbound direction.

The principal retail and business district has been receding from the river front in



PRESENT CONDITION OF PORTION OF WATER-FRONT



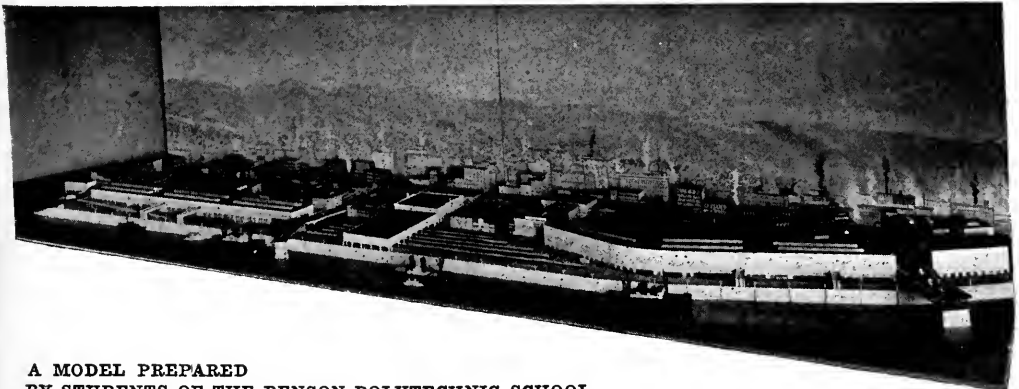
### WATER-FRONT DEVELOPMENT PROJECT

a westerly direction for many years, so that the depreciation of the property between the river and Fourth Street has been the subject of some concern. The trans-Willamette River traffic, in traversing this district near the river, is interrupted by the presence of railroad tracks for freight purposes on the east side, and for interurban passenger traffic on the west side. Furthermore, the interurban tracks and public markets obstruct some of the streets affording east and west approaches to the bridges.

To remedy these traffic conditions by effecting grade separation of the railroad traffic from the fast-moving traffic over the bridges and their approaches, a water-front development project has been proposed by the City Engineer. In addition, this project will eliminate a serious fire hazard from the water-front area by the tearing down of all the old wooden docks

and structures between Front Street and the river; improve health conditions by the construction of an interceptor sewer in Front Street as an outlet for a combination sanitary and storm sewer which traverses the down-town district; and provide a much more convenient and beautiful water-front for the down-town district.

Briefly, the project includes the acquisition of the property between the four centrally located down-town bridges from Jefferson Street on the south to Glisan Street on the north, a distance of about one mile; the construction of a concrete sea-wall along the harbor line to an elevation of 32 feet above low water, and filling behind the wall to the same elevation; the widening of Front Street from 60 feet to 100 feet; the removal of the interurban tracks from Front, First, Second, Fourth, Tenth, Jefferson and Salmon Streets to that area be-



**A MODEL PREPARED  
BY STUDENTS OF THE BENSON POLYTECHNIC SCHOOL,  
OF PORTLAND, SHOWING THE WATER-FRONT DEVELOPMENT PROJECT IN MINIATURE**

tween Front Street and the sea-wall; the construction of an interceptor sewer for the down-town district; and the construction of a public market building and consolidated interurban terminals. By elevating the bridge approaches over Front Street as a wide traffic artery, the interurban trains will all pass under the bridge approaches without interference with the trans-Willamette River auto traffic. By constructing the bridges high and wide, the river boats can pass under without the opening of the bridge draws, and the vehicular traffic can be expedited by handling slow-moving traffic in separate lines on bridges and approaches.

The dedication of a 25-foot strip for a public levee, or esplanade, for recreation purposes, for the entire length of the sea-wall will provide adjacent to the down-town business district a pleasing walk on the river front which can be reached by steps from the bridges, and under the bridges from Front Street.

In connection with this project it is anticipated that the bridge approach streets will be widened so as to expedite the traffic. The location of the consolidated interurban terminals of the Oregon Electric, Southern Pacific, and Portland Railway, Light and Power Company in that area, together with the public markets, would stimulate to a large extent pedestrian traffic in that district. This, together with the other advantages, such as terminals and boat landings for the passenger steamers, and day

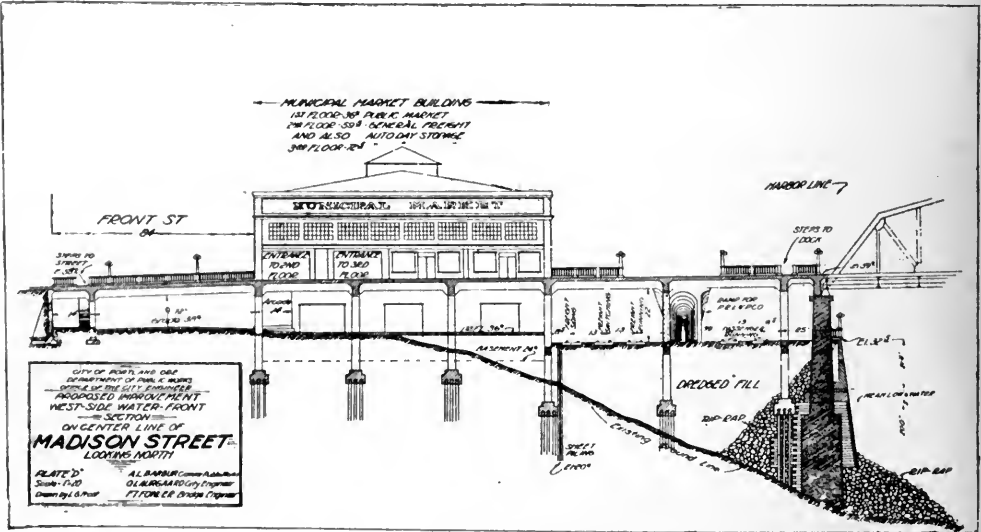
parking for automobiles in the large buildings to be constructed, would tend to rehabilitate to a great extent this area, and make it available for high-class business purposes. In addition, the construction of the sea-wall and interceptor sewer would eliminate the flooding of basements in the lower down-town district during the annual flood which takes place in the Willamette River due to the back-water in the Columbia River. This alone would justify the expenditure of several million dollars, by doing away with the removal of goods from the basements during the freshet period.

The total cost of the project, as estimated by the City Engineer, is as follows:

Estimated value of ground area required for project .....	\$4,237,738
Concrete sea-wall and fill .....	1,685,690
Track and rail construction .....	285,000
Consolidated terminal building .....	926,900
Public market building .....	2,357,575
Repavement and improvement of Front Street .....	172,550
Retaining wall along east line of Front Street .....	18,700
Interceptor sewer in Front Street .....	302,687
Incidentals and extras .....	446,820
Bridge approaches and elevated roadways ..	729,529

Total estimated cost of project.....\$11,162,919

The project has been fully investigated and endorsed by the City Planning Commission of the city of Portland, as well as by a water-front committee composed of the substantial business men of the city, appointed by the Mayor, and by many other civic organizations. After several hearings the City Council passed an ordinance approving the project in general and adopting the plan as official.



CROSS-SECTION OF PROPOSED HARBOR WALL AND IMPROVEMENTS AT MADISON STREET

# Cemeteries and the City Plan

By Myron H. West

American Park Builders, Chicago, Ill.

THE relation between the city of the dead and the city of the living has become an important problem in present-day city planning. The improper location of cemeteries has in many instances interfered with this best and most logical growth of cities.

While it is true that in some instances cemeteries have been moved when found to obstruct the city's progress, as a general thing a cemetery once established is about the most permanent example of man's handiwork. Besides being protected against the law of eminent domain, on account of the sentiment attached to them these places of the dead are practically immune from disturbance. Therefore, from a city planning standpoint, it is of the utmost importance that, before permitting the establishment of new cemeteries within or near growing cities, careful judgment should be exercised by the city plan commission, in fixing upon suitable locations and in deciding upon the manner in which the tracts shall be arranged.

Looking at the problem thus broadly, it will be seen that the proper location of a cemetery depends not only upon topography, soil, drainage, accessibility and natural beauty, but more particularly upon the direction and character of growth of the city, the tendencies of industries and business extension, prevailing winds, water-supply, and the development and character of the residential district.

In the city of LaSalle, Ill., a cemetery was placed to the leeward of a tract of land adjoining the city which early gave indication of its adaptability for industry. Cement plants were later built there, and on account of the gases and smoke, the trees in the cemetery died, the grass turned brown, and a blanket of soot settled over the tombstones. The need has become apparent of removing the bodies to a new and more satisfactory resting-place. The present location probably would never have been considered had it been studied in conjunction with a comprehensive city plan.

A portion of Lincoln Park, Chicago, was once a cemetery, but the site was so obviously needed for recreational purposes that the bodies were removed to other locations. This is one of the few instances on record in the country of a burial ground's making way for a public park. Notwithstanding this experience, two other cemeteries were later established but a short distance to the north in the path of the best residential growth, one of them at least being so located as to seriously obstruct the street system of the city.

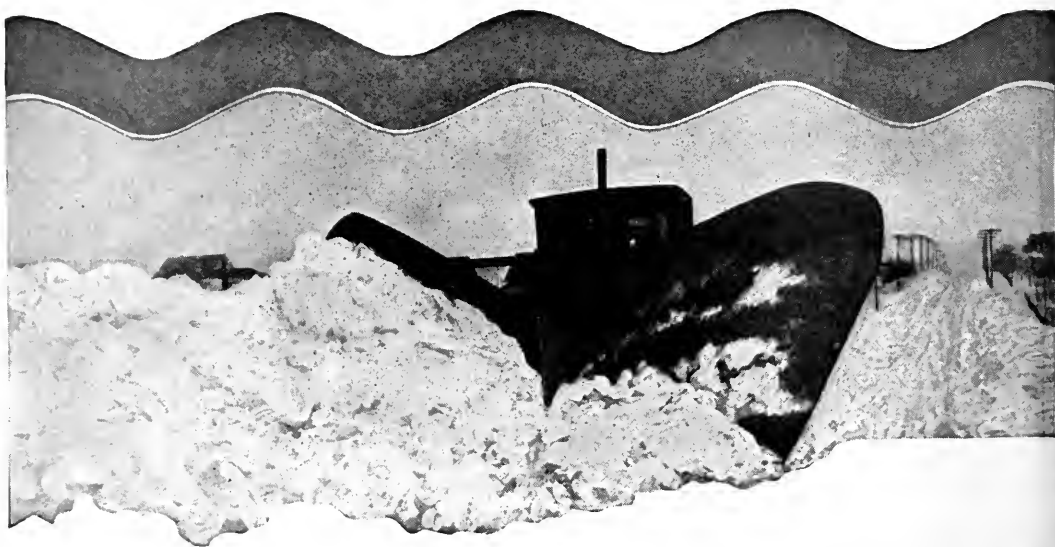
## Obstruction of Traffic Routes

Perhaps the chief menace of cemeteries to a city lies in this obstruction of main traffic routes. Examples of this may be seen in New Orleans and especially in the cemetery group located in the west section of Chicago. Because of this obstruction, there are great areas through which no traffic streets are carried, and the mobile business of the city is made to detour in constantly increasing volume. This inconvenience and loss of time reduced to dollars and cents over a period of a generation becomes staggering. It is therefore desirable that cemeteries be so placed that they will lie between main trunk thoroughfares leading to the city, and if these thoroughfares have not been established on the ground, they should be established by the city plan before the cemetery site is decided upon.

As a general thing, cemetery areas should be oblong rather than square in shape, and should be placed with their long axis leading toward the center of the city or in the direction of main traffic flow.

Cemeteries should never be placed on land which may later be needed for business or industrial purposes, nor should they be so placed as to interfere with watersheds of lakes or streams, the water of which may later be needed for domestic purposes. While it is an open question whether the seepage from cemeteries under ordinary conditions is dangerous to human life, the prevailing sentiment against such a possible





## Is Your Town Ready?

"We found our "Caterpillar" powerful and dependable, and have been able to break roads through snow faster and better than by any other method."—*E. M. HUNT, Commissioner of Public Works, Portland, Maine.*

"Over 36 inches of snow fell here during January and with "Caterpillar" Tractors, believe we have better streets than any city our size in United States where as much or less snow fell."—*The Gloversville, N. Y., Chamber of Commerce.*



**CATERPILLAR**  
Reg. U.S. Pat. Off.  
**HOLT**  
PEORIA, ILL.  
STOCKTON, CALIF.

Hundreds of cities and towns throughout the North suffered last winter from snow-blockaded streets—traffic, fire-fighting equipment and ambulances stalled, business losses mounting daily, trolley cars and inter-urban bus lines all snowbound, communication with outlying sections and nearby towns completely cut off. But the "Caterpillar"\*-equipped city, town, or public utility *was prepared.*

The "Caterpillar" has *proved* its supremacy in removing snow and ice from the streets and roads. With new types of snow-plows, our latest 2-Ton, 5-Ton, and 10-Ton models meet any emergency. Is your town ready for next winter? Prepare now! Use the "Caterpillar" for scarifying, grading, maintenance, park work, hauling, and other jobs with real cost savings, and keep your streets and roads open next winter by the "Caterpillar" method.

Let us give you interesting figures on snow removal and arrange exhibition of our motion pictures.

*"There is but one "Caterpillar"—Holt builds it*  
**THE HOLT MANUFACTURING COMPANY, Inc.**  
PEORIA, ILL.

Eastern Division: 50 Church St., New York  
*Branches and service stations all over the world*

pollution of water used for city purposes makes this an important point of consideration.

Care should be exercised in the city plan that new cemeteries do not interfere with railroad requirements, future belt lines, classification and distribution yards, freight terminals, etc., nor with the logical location of interurban lines or extensions to surface electric routes. It may be assumed that ample locations for cemeteries may be found around all cities without needlessly interfering with these elements which insure the city's ability to operate and produce.

As a general thing, the location of new cemeteries should be in the path of the residential zone, but should be as far as possible from existing housing. With the use of motor cars for funerals, it has become possible to locate cemeteries five miles or more away from the built-up district. This insures cheaper land and a better opportunity to select desirable sites. With the advent of hard roads and with interurban lines frequently convenient, the cemetery can thus be placed at considerable distance from the city and made to interfere with it but little for many years. Eventually, however, the onward march of the city will carry the homes up to the tract and beyond it, so that in any event the cemetery becomes a city-planning problem.

Even if main thoroughfares are taken care of, a large tract of land arranged in a long and relatively narrow strip will be found to interfere with local traffic. This may necessitate the obtaining of easements through the property, so that at a later date these may be opened as streets or passageways through the grounds. Unless such provisions are made at the outset, they can never be expected to be brought about after the ground has been sold in lots and interments made.

#### **To Minimize Effect on Property Values**

There is no doubt that, under ordinary circumstances, a cemetery has a deprecia-

tory effect upon the values of near-by property. If the cemetery is located in accordance with the general city plan, such conditions may be foreseen and land abutting cemeteries will be bought with this in view. It is possible to ameliorate these conditions considerably by proper planning.

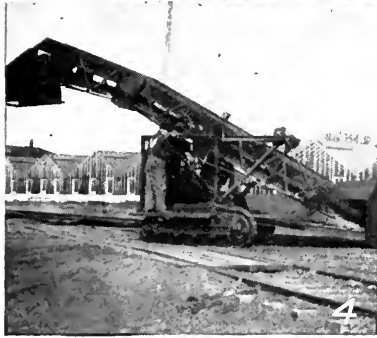
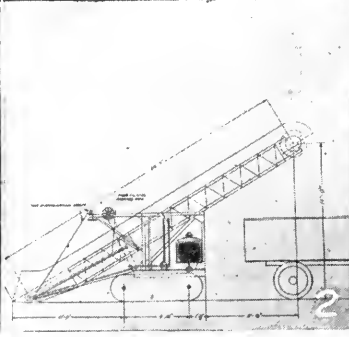
In Beloit, Wis., a strip of ample width was set aside along the frontage of the city cemetery and parked. Back of this, parking a screening of shrubbery and trees was placed to shut off views of the interior from the houses located across the street. In the general city plan for Decatur, Ill., this scheme has been recommended to apply to all future cemeteries installed. Even the control of interior views when seen from the outside of the cemetery would perhaps be reasonable, and where the general topography of the district is such as to afford views of this character, care should be exercised in the design of the cemetery to make them desirable, by means of planting, lawn or waterscape.

Another control which the municipality may well exercise is in limiting area for burial purposes. New cemeteries are frequently installed when there is little use for them. Unless a need is really apparent, the building of a new cemetery is apt to have the following effects: an unnecessary handicap to existing cemeteries; the unnecessary nuisance of a stock- or lot-selling campaign in the community; and the withdrawing from productivity and taxing benefits of a large area of land.

If it is found that undue charges are made for lots or that improper care of grounds in old cemeteries is given, it would perhaps be better, from a city standpoint, to seek legislative control of such matters than to permit new burial spaces until they are absolutely needed. It is expected that cemeteries organized and built on modern lines will pay substantial returns on the investment, whether publicly or privately owned, and there should be nothing in the fitting of the cemetery into the city plan which would militate against this.

A cemetery, properly laid out and managed, can become an asset to a community. It should be permissible, after two or three generations following the final burial, to remove the gravestones and monuments, making the whole cemetery into a quiet park—landscaping it comprehensively with well-kept drives and lawns, trees, shrubs, and flowers. It would then be a veritable beauty-spot for the adjoining territory, and its presence regretted by no one in the neighborhood.

—FRANK E. WETHERELL.



1. A Barber-Greene in Boston handling snow that is mostly ice.
2. Side view of a Barber-Greene Snow Loader.
3. In Albany a Barber-Greene Snow Loader made a record by loading 45 trucks an hour—greatly reducing haulage time and costs as well as shoveling expense.
4. A Barber-Greene Snow Loader being moved under its own power, for shipment to an Eastern City.
5. A Barber-Greene Bucket Loader, loading stone on a road-building job. The Snow Loader can be converted into a Bucket Loader with an interchangeable boom.



## The fight against snow should begin in August

**A**CCORDING to the State Street Association, a single snow-storm in Chicago cost the down town stores \$20,000,000.

This figure was arrived at by taking the average profit made during the week for a number of years. The figures for the week of the big snow-storm were \$20,000,000 below the average. There were no increases in the weekly averages after the storm. The snow caused a loss which was never made up. In smaller cities the situation was similar.

The same amount of fire loss caused by inadequate fire-fighting methods would bring out indignant and effective protests; but snow losses are still considered unavoidable by many.

Numerous cities, however, have found that fighting snow is very much like

fighting fire—it should begin with the snowfall and not wait until the storm is over.

Second, it should have proper equipment. It should not depend on the shovel any more than fire-fighting should depend on the bucket line.

In order to devise effective and economical methods before the battle, and to provide for the proper equipment before it is needed instead of waiting until the damage is done, aggressive municipalities, street railways and chambers of commerce begin their planning and educational work in August.

A Barber-Greene snow-fighting engineer is always available to present the methods and plans of those who have made most progress in the fight against snow. Send for additional data.

BARBER-GREENE COMPANY—Representatives in 33 Cities—515 W. Park Avenue, Aurora, Illinois

**BARBER GREENE**  
 Portable Belt Conveyors  Self Feeding Bucket Loaders  
 Automatic Disc Feed of the B-G Loader

# Salaries of Mayors

IN reply to a request from THE AMERICAN CITY, more than a thousand mayors have recently furnished information as to the amount of their annual salaries. For purposes of ready comparison, the municipalities represented have been grouped according to population (1920 Census). Those of 5,000 or larger are listed in the following tables; and the data from the smaller municipalities will appear in a subsequent issue.

In municipalities having a city manager, the salary of the mayor is ordinarily smaller, of course, than in a city of corresponding size in which the mayor has the major responsibility for the management of the city's affairs. City manager municipalities are, therefore, indicated by an asterisk in the lists which follow.

If no salary whatever is paid to the mayor, a dash appears in place of figures in the salary column.

## 5,000 TO 9,999 POPULATION

CITY	Annual Salary	CITY	Annual Salary
*Ames, Iowa.....	\$600	*Hampton, Va.....	—
Baker, Ore.....	2,000	Harrisonburg, Va.....	600
Beatrice, Nebr.....	1,800	Haverstraw, N. Y.....	—
Beaver Dam, Wis.....	600	Helena, Ark.....	1,200
Bellevue, Ky.....	500	Hoopeston, Ill.....	—
Bellevue, Pa.....	300	Johnston City, Ill.....	200
Benton, Ill.....	600	Kenora, Ontario.....	—
Blackwell, Okla.....	600	Kent, O.....	250
Bogalusa, La.....	1,000	Kenton, O.....	1,200
*Bristol, Va.....	300	Keyser, W. Va.....	500
*Bryan, Tex.....	60	Kinston, N. C.....	1,000
Calais, Me.....	200	Kirksville, Mo.....	750
Carbondale, Ill.....	300	Lafayette, La.....	—
Centralia, Wash.....	1,200	Lawton, Okla.....	—
Cherokee, Iowa.....	300	Leighton, Pa.....	300
Chillicothe, Mo.....	300	Lewiston, Ida.....	300
Cloquet, Minn.....	100	Lewistown, Mont.....	1,200
Collingswood, N.J.....	1,000	Lewistown, Pa.....	300
Collinsville, Ill.....	600	Livingston, Mont.....	300
Columbus, Nebr.....	500	Luzerne Borough, Pa.....	360
Conshohocken, Pa.....	400	Macomb, Ill.....	400
Coraopolis, Pa.....	450	Maplewood, Mo.....	400
Corry, Pa.....	500	Marcus Hook, Pa.....	500
Covington, Va.....	1,500	Metropolis, Ill.....	600
Cudahy, Wis.....	125	Montpelier, Vt.....	—
Cushing, Okla.....	2,400	Moultrie, Ga.....	600
*Daytona, Fla.....	—	Mt. Oliver, Pa.....	400
DeKalb, Ill.....	500	Miles City, Mont.....	600
East Palestine, O.....	500	Nampa, Ida.....	600
Elberton, Ga.....	300	Napa, Calif.....	—
*Elizabeth City, N. C.....	300	New Iberia, La.....	1,300
Endicott, N. Y.....	1,200	Newton, Kans.....	1,000
Ennis, Tex.....	360	Norwalk, O.....	1,000
Fayetteville, Ark.....	2,100	Oskaloosa, Ia.....	1,500
Fayetteville, N. C.....	1,800	Owatonna, Minn.....	—
Fort Collins, Colo.....	700	Palmerston, Pa.....	300
Fostoria, O.....	900	Paragould, Ark.....	600
*Freeport, N. Y.....	—	*Pawhuska, Okla.....	1
Gainesville, Tex.....	400	Poplar Bluff, Mo.....	600
Great Barrington, Mass.....	—	Portland, Ind.....	720
Greensburg, Ind.....	720	Princeton, N. J.....	500
Greenville, N. C.....	1,200	Rankin, Pa.....	600
Haddonfield, N. J.....	750	Redlands, Calif.....	600
		Rhineland, Wis.....	800
		Roselle Park, N.J.....	—

St. Marys, Pa.....	250	*Thomasville, N. C.....	200
Salamanca, N. Y.....	300	*Three Rivers, Mich.....	100
Salem, N. J.....	500	Trenton, Mo.....	300
*Sanford, Fla.....	—	Ubrichsville, O.....	1,500
Schuylkill Haven, Pa.....	200	Van Wert, O.....	1,260
Shenandoah, Ia.....	225	Victoria, Tex.....	1,200
Sheridan, Wyo.....	2,400	Washington, N.C.....	600
South River, N. I.....	—	Webster City, Ia.....	—
Spring Valley, Ill.....	480	Westfield, N. J.....	1
Stattsville, N. C.....	700	Weston, W. Va.....	500
*Sturgis, Mich.....	100	Willmar, Minn.....	—
*Suffolk, Va.....	—	Wilmington, O.....	500
Talladega, Ala.....	600	*Winchester, Va.....	—
*Terrell, Tex.....	130	York, Nebr.....	100

## 10,000 TO 24,999 POPULATION

CITY	Annual Salary	CITY	Annual Salary
Alliance, O.....	\$2,200	Jackson, Tenn.....	2,500
Annapolis, Md.....	400	Kankakee, Ill.....	1,800
Ann Arbor, Mich.....	500	Keene, N. H.....	500
Appleton, Wis.....	1,200	Key West, Fla.....	1,404
Asbury Park, N.J.....	2,500	Lancaster, O.....	1,500
Ashland, Wis.....	900	Lincoln, Ill.....	500
Athens, Ga.....	1,800	Little Falls, N. Y.....	—
Augusta, Me.....	500	Marshall, Tex.....	1,800
*Bakersfield, Calif.....	600	Mason City, Ia.....	2,500
Bartlesville, Okla.....	2,000	Meadville, Pa.....	500
Billings, Mont.....	1,500	Middletown, N. Y.....	2,000
Bucyrus, O.....	1,600	Murphrysboro, Ill.....	600
Canton, Ill.....	600	Naugatuck, Conn.....	200
Cape Girardeau, Mo.....	1,500	Northampton, Mass.....	1,200
Casper, Wyo.....	1,000	Oneida, N. Y.....	300
Chambersburg, Pa.....	120	Ottumwa, Ia.....	2,100
Cheyenne, Wyo.....	2,400	Pekin, Ill.....	1,200
Chilton, Ia.....	1,000	Piqua, O.....	1,200
Cleburne, Tex.....	1,800	Port Arthur, Ontario.....	1,500
Columbia, Mo.....	500	Portsmouth, N. H.....	500
Columbia, Pa.....	100	Plymouth, Pa.....	1,500
Connellsville, Pa.....	500	Pottstown, Pa.....	600
Corning, N. Y.....	200	Reno, Nev.....	900
Corpus Christi, Tex.....	1,800	Rutland, Vt.....	500
Cortland, N. Y.....	600	St. Cloud, Minn.....	1,500
Crawfordsville, Ind.....	1,000	*San Angelo, Tex.....	600
*El Dorado, Kans.....	50	*Santa Barbara, Calif.....	150
Eureka, Calif.....	420	Santa Cruz, Calif.....	1,200
Farrell, Pa.....	—	Saratoga Springs, N. Y.....	500
Findlay, O.....	1,200	Shamokin, Pa.....	1,500
Frankfort, Ind.....	1,500	Shawnee, Okla.....	1,800
Gadsden, Ala.....	15	*Staunton, Va.....	300
Galt, Ontario.....	700	Stratford, Ontario.....	1,000
Gardner, Mass.....	1,600	Tiffin, O.....	1,200
Geneva, N. Y.....	—	Trinidad, Colo.....	2,400
*Glendale, Calif.....	480	Tuscaloosa, Ala.....	1,500
*Goldsboro, N. C.....	1,500	Uniontown, Pa.....	1,200
Great Falls, Mont.....	1,800	Urbana, Ill.....	1,000
Greeley, Colo.....	225	Vallejo, Calif.....	2,400
Greenville, Tex.....	3,600	Vincennes, Ind.....	1,500
Hannibal, Mo.....	1,100	Waycross, Ga.....	1,000
Harrison, N. J.....	1,000	West Chester, Pa.....	600
Hastings, Nebr.....	500	Winona, Minn.....	500
Helena, Mont.....	3,000	Yakima, Wash.....	2,500
Henderson, Ky.....	2,200		
Hutchinson, Kans.....	800		

## 25,000 TO 99,999 POPULATION

CITY	Annual Salary	CITY	Annual Salary
Asheville, N. C.....	\$4,000	Decatur, Ill.....	3,500
Aurora, Ill.....	3,500	Everett, Wash.....	2,000
*Bay City, Mich.....	750	Green Bay, Wis.....	4,000
*Beaumont, Tex.....	300	Hammond, Ind.....	4,000
Bellingham, Wash.....	1,200	Haverhill, Mass.....	2,500
Bethlehem, Pa.....	2,500	Hoboken, N. J.....	5,000
Butte, Mont.....	4,000	*Jackson, Mich.....	750
Cedar Rapids, Ia.....	3,000	Kingston, N. Y.....	—
Clifton, N. J.....	600	Kokomo, Ind.....	2,000
Columbia, S. C.....	2,500	Lakewood, O.....	6,000
Covington, Ky.....	3,600	Lawrence, Mass.....	3,500
Cranston, R. I.....	3,500	*Lima, O.....	600
Danville, Ill.....	—	Lincoln, Nebr.....	2,500
Davenport, Ia.....	2,500	Little Rock, Ark.....	5,000

# Prepare Now For Next Winter's S n o w s



One of the City of Cleveland's fleet of Baker Auto Truck Snow Plows. Mr. J. M. Morris, Deputy Commissioner, Department of Public Service for the City of Cleveland, writes:

"I am glad to state that the Baker Plows recently purchased from you performed very creditably during the several recent snow storms here and no loss of time was occasioned by the plows being damaged by elevations in the streets.

The Trip Blade enabled us to secure a continuous operation of our plows without which we would have been seriously hampered."



**Patent Safety Tripping  
Blades an Exclusive Baker Feature.**

Blades trip back when meeting obstruction and prevent injury to plow or truck. Insist on this protection.

*We also make Snow Plows  
for Leading Makes of Tractors*

## **BAKER** **AUTO TRUCK** **SNOW PLOW**

Prepare by installing the right kind of snow moving equipment—the kind that has stood the test for years. You can buy Snow Insurance cheaply. The many exclusive features of Baker Auto Truck Snow Plows insure you the right kind of protection against snow storms. They fit on all standard motor trucks without drilling holes.

They are built to "stand the gaff." Adjustable shoes — safety tripping blades — scientifically curved moldboard — positive lifting device — are outstanding features that make the Baker Auto Truck Snow Plow supreme.

Leading State Highway Departments, large cities, counties, public institutions and large industrial plants use Baker Snow Plows. You'll find them in every state in the Snow Belt. Write for Complete Catalog, Now.

**THE BAKER MANUFACTURING COMPANY**  
503 STANFORD AVENUE, SPRINGFIELD, ILL.

London, Ontario..	2,000
Lorain, O.....	3,000
* Lynchburg, Va..	750
Madison, Wis....	2,000
Malden, Mass....	2,000
Mansfield, O.....	3,000
Marion, O.....	2,400
Meriden, Mass....	3,000
Meriden, Conn....	2,500
Montclair, N. J..	2,700
Nashua, N. H....	2,000
New Britain, Conn. ....	2,500
* Newburgh, N. Y.	750
New Rochelle, N. Y. ....	5,000
Norwalk, Conn....	1,000
Ogden, Utah.....	4,200
Parry Sound, Ont. —	—
* Pasadena, Calif..	600
Pawtucket, R. I..	2,000

Perth Amboy, N.J.	1,800
Petersburg, Va....	600
Plainfield, N. J..	300
Port Huron, Mich.	2,000
Portland, Me....	4,000
Portsmouth, O....	1,300
St. John, N. B....	3,000
Sheboygan, Wis..	720
Springfield, Mo..	2,400
* Tampa, Fla. ....	1,800
Taunton, Mass....	2,400
Topeka, Kans. ....	3,000
Waltham, Mass....	5,000
Waterloo, Ia.....	3,600
West New York, N. J. ....	1,000
Wichita Falls, Tex. ....	3,600
Windsor, Ontario.	3,000
Woonsocket, R. I.	1,800

## POPULATION OF 100,000 AND OVER

CITY	Annual Salary	CITY	Annual Salary
* Akron, Ohio.....	3,600	Milwaukee, Wis..	6,800
Albany, N. Y....	6,500	Minneapolis, Minn.	6,000
Bridgeport, Conn.	6,000	Nashville, Tenn..	6,000
Buffalo, N. Y....	8,000	New Bedford, Mass. ....	7,500
Camden, N. J....	5,000	New Haven, Conn.	7,500
Cincinnati, O....	10,000	Oakland, Calif. .	4,200
* Dayton, O.....	1,800	Paterson, N. J...	4,200
Denver, Colo....	6,000	Providence, R. I.	6,500
Detroit, Mich....	8,000	Rochester, N. Y.	7,500
Fort Worth, Tex.	3,600	Scranton, Pa....	5,000
Houston, Tex....	7,500	Springfield, Mass.	6,000
Kansas City, Kan.	4,500	Toledo, Ohio ....	7,500
Memphis, Tenn..	6,000		

## Salaries of School Teachers, Principals and Superintendents

THE Research Division of the National Education Association publishes (in its Bulletin No. 2) tables showing, in summarized form by states, the salaries paid by the public schools in 964 cities. From these tables the following compilation of median salaries in the various population groups has been compiled:

\* MEDIAN SALARIES FOR THE SCHOOL YEAR 1922-23 PAID IN CITIES WITH A POPULATION OF

	2,500 to 5,000	5,000 to 10,000	10,000 to 30,000	30,000 to 100,000	Over 100,000
Number of cities reporting.....	325	261	216	102	60
Kindergarten teachers .....	\$1,193	\$1,264	\$1,318	\$1,462	\$1,791
Elementary teachers .....	1,105	1,200	1,277	1,467	1,876
Junior high-school teachers.....	1,271	1,370	1,439	1,665	2,136
Senior high-school teachers.....	1,469	1,567	1,670	1,917	2,487
School nurses .....	1,388	1,425	1,510	1,395	1,423
Supervising elementary principals	1,850	1,900	2,008	2,344	3,126
Junior high-school principals....	1,594	1,917	2,350	3,050	3,485
Senior high-school principals....	2,062	2,502	3,051	3,806	4,400
Superintendents of schools.....	3,082	3,557	4,110	5,861	7,750

\* Median Salaries: The best-paid fifty per cent of a group of teachers receive salaries equal to or exceeding the "median" salary, and the poorest-paid fifty per cent of a group of teachers receive salaries that are equal to or less than the median salary. A median salary for practical purposes is practically the same as an "average" salary.

An important section of the Bulletin is devoted to tables and statements in reply to the question, "Can the Nation Afford to Educate Its Children?" From the facts and figures presented, the indications are summarized by the Research Division as follows:

"The cost of the schools during the war decade was less than two per cent of the Nation's income and constituted a levy of but four-tenths of one per cent on the Nation's total wealth. During this period school expenditures showed no general tendency to grow

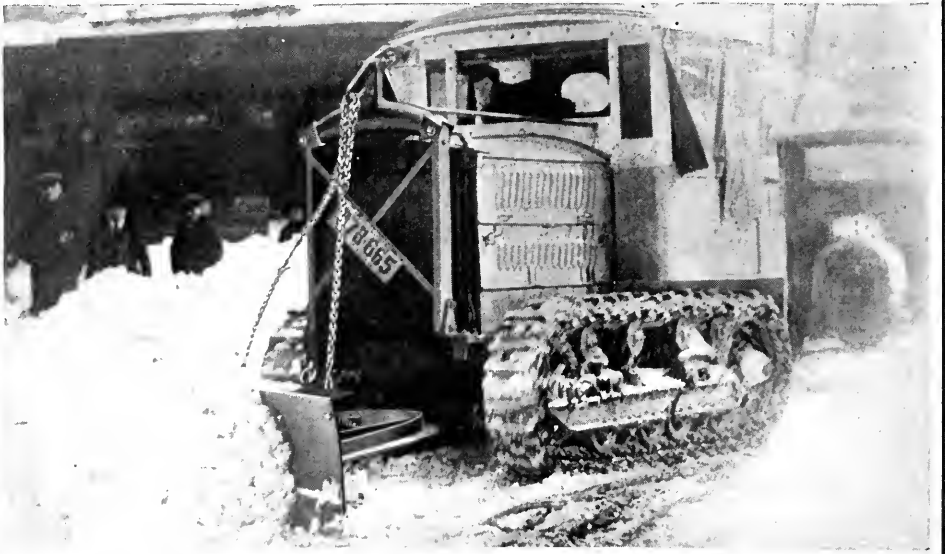
more rapidly than did the Nation's ability to meet them. The percentage of the Nation's income devoted to the schools at the close of the decade was practically the same as at the beginning. There was, therefore, no real increase in the school costs in the sense that they constituted a greater relative burden on the Nation, only a fictitious increase, most if not all of which can be accounted for by the generally recognized economic phenomenon—the

depreciation in value of the dollar. The amount of money at the disposal of the schools in 1920 had less purchasing power, that is, less power to command tangible goods and human services in the open market, than the amount available in 1913.

"The cost of education represents but a small fraction of all public expenditures. In 1920 but twelve cents out of every dollar expended for public purposes went for the maintenance of elementary and high schools.

"These facts give little support to the contention that the wealth of the United States is inadequate to meet its school costs. A moderate degree of faith in the efficacy of the public school as an instrument of social progress would fully justify the school expenditures of 1920.

"It may be desirable, as the Carnegie Report suggests, to close the doors of the school to the masses at an earlier age. Perhaps there should be a narrowing of the curriculum offered the limited number allowed to remain in school beyond six or eight years. These are questions which school people and the American public must face and answer. A disregard of the facts does not aid in the decision.



*Champion Snow Plow attached to a Holt Tractor, showing machine working in a big snow storm in New York City.*

## WE'RE READY

When the storms of winter come and your roads or streets are filled with snow, it will be a big satisfaction to be able to say: "We're ready to open our highways."

Unless you have a sufficient number of Champion Snow Plows to quickly free the roads or streets of snow, you will be handicapped in your efforts to keep travel moving.

Towns, Cities, Counties, and States are coming to realize that the cost of a considerable number of Plows is insignificant alongside the loss occasioned by the tying up of traffic after heavy snow storms.

The use of Champion Snow Plows is conceded to be the only practical method of removing snow from city streets and country roads.

It will pay you to get acquainted with the Champion Plow. Complete illustrated catalogue free for the asking.

BOSTON · MASS.  
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**GOOD ROADS  
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INC.  
KENNETT SQUARE, PA.

ATLANTA · GA.  
PORTLAND · ORE.  
SAN FRANCISCO  
-AND-  
LOS ANGELES · CAL.



"That the schools need reorganizing few will deny. The confession in 1920 of five million illiterates, three million of whom were native-born, that they had had no schooling whatever, is but one of the many facts that unmistakably point in that direction.

"A realization of such facts, however, does not logically lead to the conclusion that the

United States is unable to support its present school system, or a better one if it wishes. To accept such a belief is to disregard the facts and to show a greater desire to protect fabulous incomes than to guarantee to every American child that most precious of gifts—'an unfettered start and a fair chance in the race of life.'"

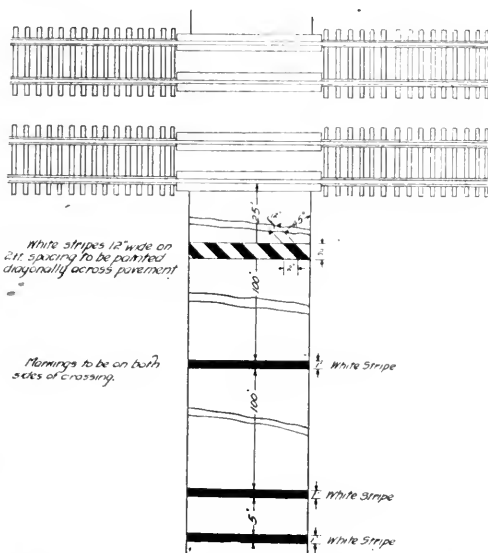
## Distinctive Methods of Marking Pavements at Approaches to Railroad Grade Crossings

AS an additional safeguard for the traveling public, Commissioner Frederick Stuart Greene of the New York State Commission of Highways has directed the use of a distinctive method of marking the pavement at all approaches to railroad crossings on the state highways.

Approaching the tracks from either direction of the highway, the automobilist will first be confronted by two white parallel stripes painted 1 foot wide, and placed 5 feet apart. These stripes will stretch clear across the pavement and will be placed 230 feet from the nearest track. The second guard against carelessness will be a third warning stripe, also 12 inches wide, painted 125 feet from the nearest track.

If, after reaching this third stripe, the driver fails to "stop, look and listen," he will be given one more chance to save himself. The final warning signal will be 2 feet wide and will be painted with white and black diagonal bars, similar to the markings on railroad guard gates. It will be located 25 feet from the nearest track, which, if the driver is not running beyond the legal rate of speed, will still give him opportunity to stop before reaching the track.

It is hoped by the Commission that this new warning device will serve to reduce the number of grade-crossing accidents during the long



METHOD OF MARKING HIGHWAYS AT RAILROAD GRADE CROSSINGS, RECOMMENDED BY THE NEW YORK STATE COMMISSION OF HIGHWAYS

period that must elapse before all grade crossings can be eliminated in New York State.

## Most Crashes Occur on Safest Highways—Foolhardy Driving Chief Cause of Road Accidents

RECKLESS driving and speeding, not road conditions, are the cause of nine-tenths of the accidents on the public highways, according to the Bulletin of the Minnesota State Highway Department. Since the largest number of accidents happen on the best stretches of road, it is evident that dangerous highway conditions are seldom responsible for them. Reports of all accidents on the highways are received by the Minnesota State Highway Department, and special investigations are made of the more serious ones. Safety is a first consideration at all times in the construction of Minnesota highways, as is evidenced by the separation of railroad grade crossings, the rounding of curves and

the clearing of view obstructions, the building of guard-rails and the posting of warning signs and other safety devices—a very progressive policy.

As long as speeding and reckless driving are permitted by local officials designated by law to police the highways, accidents will multiply with increasing traffic. Sandy spots and loose gravel are not dangerous when an automobile is traveling at a reasonable speed. No road can be safe for the driver who is blinded by glaring headlights, or has fallen asleep at the wheel. Racing puts danger in the otherwise safe roads. Experience has demonstrated that the biggest safety factor is sane, careful driving.



Patching surface breaks on suburban highway with Tarvia

## “Eternal Maintenance is the Price of Good Roads”

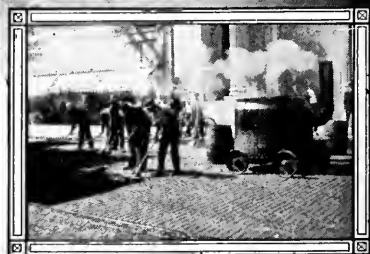
TODAY Road Engineers and well informed laymen realize that eternal maintenance is the price of good roads. For experience has conclusively demonstrated that *every* type of modern road or highway requires regular, systematic upkeep if it is to withstand the grinding wear of modern traffic.

And every type of improved road can be satisfactorily and economically maintained with Tarvia. Hundreds of cities, towns, and rural communities throughout the United States and Canada employ Tarvia maintenance on all their streets and highways.

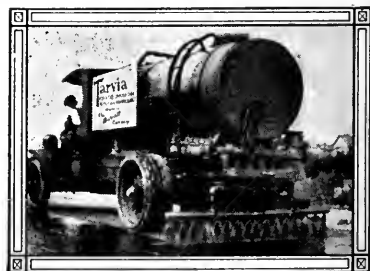
Not only is Tarvia preeminent as a road-building material, but it is made in special grades that are unequalled for reconstructing, repairing and maintaining all types of improved roads. Tarvia keeps every type of good roads good, at minimum cost and with minimum interruption to traffic.

## Send for “Road Maintenance with Tarvia”

If you are interested in economical maintenance for the roads of your community—send for “Road Maintenance with Tarvia.” Address “Tarvia Service Department” at our nearest branch.



Surface-treating with Tarvia and pea-gravel covering over brick pavement



Tarvia maintenance Truck applying Tarvia



Patching macadam street with Tarvia

**Tarvia**  
For Road Construction  
Repair and Maintenance

The *Barrett* Company

New York	Chicago	Philadelphia	Boston
St. Louis	Cleveland	Cincinnati	Pittsburgh
Detroit	Kansas City	Birmingham	Dallas
Minneapolis	Salt Lake City	Bethlehem	Lebanon
Youngstown	Milwaukee	Toledo	Columbus
Baltimore	Syracuse	New Orleans	Rochester

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# A Forecast of the Future Population of the New York Region

By Shelby M. Harrison

Director, Social Survey, Plan of New York and Its Environs

**H**OW many people will the New York Region have fifty or sixty or a hundred years hence? Not how many should there be, but how many will there be, if past trends continue and nothing is done to control future growth and distribution of populations?

These are questions which have to do with the probable future demands of the people of this region for land and building space; and hence questions intimately related to city and regional planning in and around New York. Realizing this relationship, the Committee on Plan of New York and Its Environs decided some months ago that the question should be looked into. The Committee realized also that the problem is one which will need to be grappled with in one form or another through many phases of its planning. Its later studies into industrial, economic, housing, and other tendencies will undoubtedly cast further light upon population trends for particular sections. But in the meantime it seemed desirable, and indeed the logical beginning point, to see what could be ascertained for the region as a whole.

In addition to estimates made by its own staff, the Committee asked Professors Raymond Pearl and Lowell J. Reed, of Johns Hopkins University, who had recently developed a new method of forecasting population movements, to study the situation in New York and indicate what in their judgment might be expected in the future.

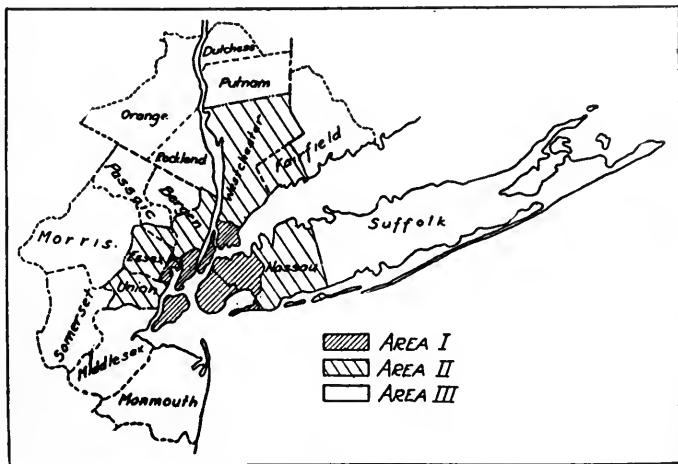
The figures by Professors Pearl and Reed have just recently be-

come available and have been printed in detail in a report issued by the New York Committee.\* They have been arrived at through the use of a mathematical formula developed to take account of five major facts:

"*First*, the area upon which the population grows is finite—the area has a definite size or upper limit. *Second*, since population lives upon limited areas there must be a definite upper limit to the number of persons who can live on that area; that is, it is inconceivable that populations on particular areas can increase without limit. *Third*, there is also a lower limit to population, which is zero—population obviously cannot go below that. *Fourth*, each epoch marking an advance in human culture and economy has made it possible for a given area to support more people. And *fifth*, the rate of growth during each epoch, in so far as it has been observed, varies, being slow at first, then increasing in rate to a maximum, and then decreasing until almost a stationary aggregate of population is maintained."

The total area which has been chosen for

\* "Predicted Growth of Population of New York and Its Environs," by Raymond Pearl and Lowell J. Reed. Plan of New York and Its Environs, 130 East 22nd Street, New York City.



MAP OF THE NEW YORK REGION

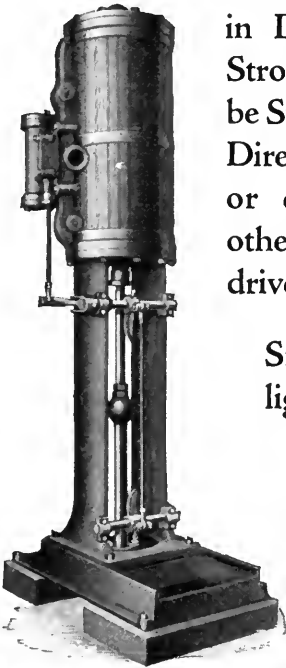
The total area included for regional planning by the Committee on Plan of New York and Its Environs embraces over 5,500 square miles and is part of three states—New York, New Jersey, and Connecticut



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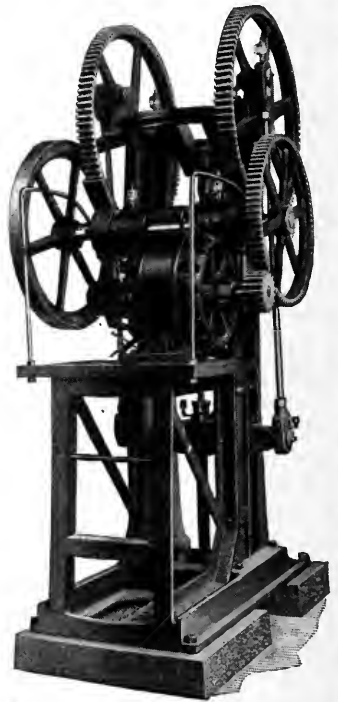
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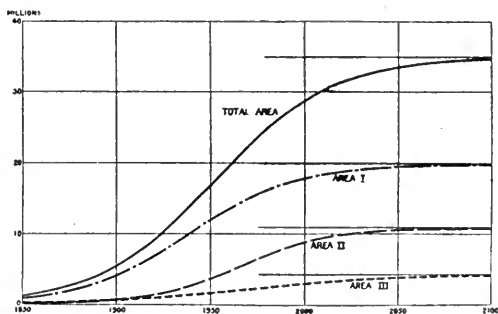
## *Keystone Driller Company*

170 Broadway, New York Monadnock Block, Chicago Joplin, Mo.

### *Beaver Falls, Pa.*

regional planning in New York embraces over 5,500 square miles and extends into New York State, New Jersey, and Connecticut. This was divided by the Committee into three areas. Area I, on the inside, as will be seen on the accompanying map, consists of New York City and the more densely populated parts of New Jersey (Hudson County and Newark) adjacent to the city; Area III, on the outside, includes the belt of rural and semi-rural counties forming the outer boundary of the New York commuting district; and Area II is the territory in between the two—less densely populated than the central portions, but more built up than the rural sections. Separate predictions were made for all three of these areas, for the region as a whole, and for New York City alone. These totals, for the years 1920 to 2000, as found by Professors Pearl and Reed, are presented in the accompanying table. Predictions were also made as to certain elements of the population of New York City, among them the foreign-born people, and negroes.

In presenting these calculations, Frederick P. Keppel, Secretary of the New York Committee, concludes with this pertinent observation:



POPULATION CURVES FOR TOTAL AND COMPONENT AREAS OF THE NEW YORK REGION

"The fact that the predictions by Professors Pearl and Reed, as well as several others which have been made, point to such great future population aggregates for this region, constitutes in itself one of the strongest arguments for careful and comprehensive planning."

PREDICTED GROWTH OF POPULATION OF NEW YORK CITY AND ITS ENVIRONS, 1920 TO YEAR 2000

Year	Total Area	Area I	Area II	Area III	New York City
1920...	9,122,000	6,803,000	1,408,000	944,000	5,731,000
1930...	11,458,000	8,441,000	1,990,000	1,146,000	7,032,000
1940...	14,066,000	10,166,000	2,754,000	1,380,000	8,372,000
1950...	16,841,000	11,878,000	3,700,000	1,643,000	9,672,000
1960...	19,647,000	13,479,000	4,735,000	1,924,000	10,861,000
1970...	22,342,000	14,895,000	5,927,000	2,221,000	11,892,000
1980...	24,806,000	16,086,000	7,025,000	2,514,000	12,745,000
1990...	26,958,000	17,047,000	7,993,000	2,794,000	13,424,000
2000...	28,765,000	17,797,000	8,753,000	3,051,000	13,948,000

## A Municipal Gas Plant Helps to Exterminate Mosquitoes

THAT creosol, or crude creosote, is an effective exterminator of the wriggler which is bred the mosquito, has been demonstrated in St. Petersburg, Fla. The city is now using this substance, a by-product of its municipal gas plant, altogether in the conduct of its mosquito control campaign. The gas plant makes about 30,000 gallons of creosol annually, most of it being used for fuel beneath the plant's boilers.

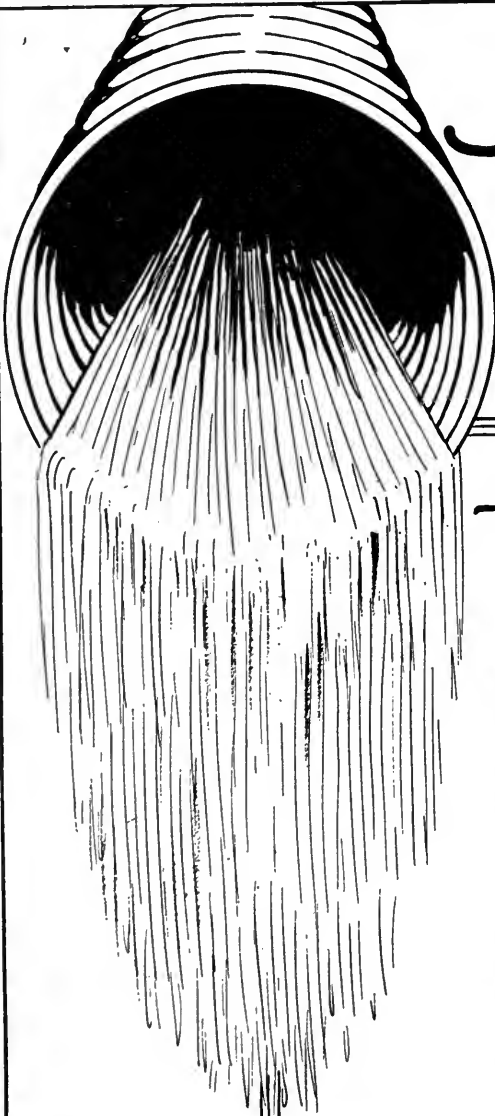
Health Director W. E. A. Wyman has tested the crude creosote in spraying ponds and ditches where water has stood because of poor drainage and reports that it means instant death to the wrigglers. Not only that, he states, but its tar odor lasts, and flies and insects are driven away for a considerable period of time after its use.

Since the month of February, when this plan was inaugurated, the mosquito has been almost eradicated from St. Petersburg, and it is reported that subsequently there has been not the slightest indication of dengue fever, caused

by the mosquito bite. In May, when inspectors found too many breeding places, arrests were made, persons in most cases being fined \$10 for harboring mosquitoes or wrigglers, if proved guilty. Lately, however, inspectors report that breeding places have almost disappeared.

EDITORIAL NOTE.—The foregoing item was submitted by THE AMERICAN CITY to Dean Jacob G. Lipman, Director of the State of New Jersey Agricultural Experiment Station, a well-known authority on mosquito extermination, who writes:

"Coal tar products, including the residues from municipal gas plants described in your letter, could, no doubt, be used as larvacides. In the experiments carried on at the New Jersey Station with phenol, lysol and similar products, the larvacidal effect was readily obtained. Unfortunately, the cost of the materials makes them less satisfactory to use than crude oil, which at present seems to be by far the cheapest larvacide in mosquito extermination. However, under the conditions described by Dr. Wyman, the crude creosote can evidently be had at a very low cost and its use would be entirely justifiable. If similar material may be had at other places at practically no cost, it should be acceptable for the purpose suggested."



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# Finances of Detroit's Municipal Street Railways

IN its bulletin, *Public Business*, for June 30, 1923, the Detroit Bureau of Governmental Research publishes a 34-page report of a study of "The finances of the city's municipal street railway system." It is pointed out that the Department of Street Railways is one of twenty departments maintained by the city of Detroit, and that it is of peculiar importance because it affects intimately and directly the convenience of so many citizens; because its mismanagement on account of politics or incompetency would affect the city's credit and increase the burdens of the taxpayers; and because as a large experiment in municipal ownership and operation it is being carefully watched by the citizens of Detroit and other cities.

The period of city-wide operation of the system by the municipality, covered by the report, is from May 15, 1922, to April 30, 1923—11½ months. During that period the earnings from operation were:

Total revenues .....	\$19,067,631.30
Operating expenses (not including depreciation) .....	13,368,796.72
Net operating revenues.....	\$5,698,834.58
Taxes, rents, etc.....	\$634,641.15
Interest .....	1,795,487.07
Sinking funds .....	2,233,070.73
Total taxes, interest and sinking fund payments, etc.....	\$4,668,198.95
Excess, after above deductions.....	\$1,030,635.63

The present rate of fare—5 cents with 1 cent additional for transfer—amounts to an average fare of nearly 5½ cents.

In the summary of the report the paragraphs on rehabilitation and depreciation and the conclusions are as follows:

## Rehabilitation

The properties purchased from the Detroit United Railway were in a state of bad repair, estimated by the Department of Street Railways at from 70 to 75 per cent of way and structures of proper condition for operation. Extensive rehabilitation of way, structures and equipment was therefore necessary, and the expenditures for this are included partially in the operating costs given above, and partially in surplus from revenues. This rehabilitation will require several years.

## Depreciation

The Department of Street Railways has provided and to date is maintaining:

(a) A sinking fund out of earnings for the retirement of its bonded indebtedness at maturity

(b) A sinking fund out of earnings to pay the purchase price under the Detroit United Railway contract

At present no depreciation reserve, as such, is established, although expenditures properly chargeable to capital have been charged as maintenance, and indebtedness in excess of an estimated amount of depreciation for the period has been retired from earnings.

The Board of Street Railway Commissioners believes that such reserve is highly desirable as a means of determining actual property values, operating costs, and proper rate of fare, and contemplates the establishment of a depreciation account in the near future. The Bureau understands that this will be done.

## Conclusions

The following conclusions are based upon the facts set forth by the records of the Department of Street Railways, and are subject to final verification by independent audit. These are:

That, under the circumstances, creditable progress has been made toward solving the financial problems of the Department of Street Railways.

That general city taxes have not borne any charge for interest and sinking fund payments.

That the revenues of the Department of Street Railways during the past 11½ months are in excess of all charges made for operation and maintenance (except depreciation), and interest and sinking fund requirements.

That sufficient reserves are being set aside in a sinking fund to provide for the payments of interest and to retire all outstanding bonds issued on behalf of the Department of Street Railways.

That sufficient reserves are being set aside to meet the nineteen semi-annual payments of \$500,000 each on the purchase contract with the Detroit United Railway and to make the final payment of \$7,580,000, due in 1931.

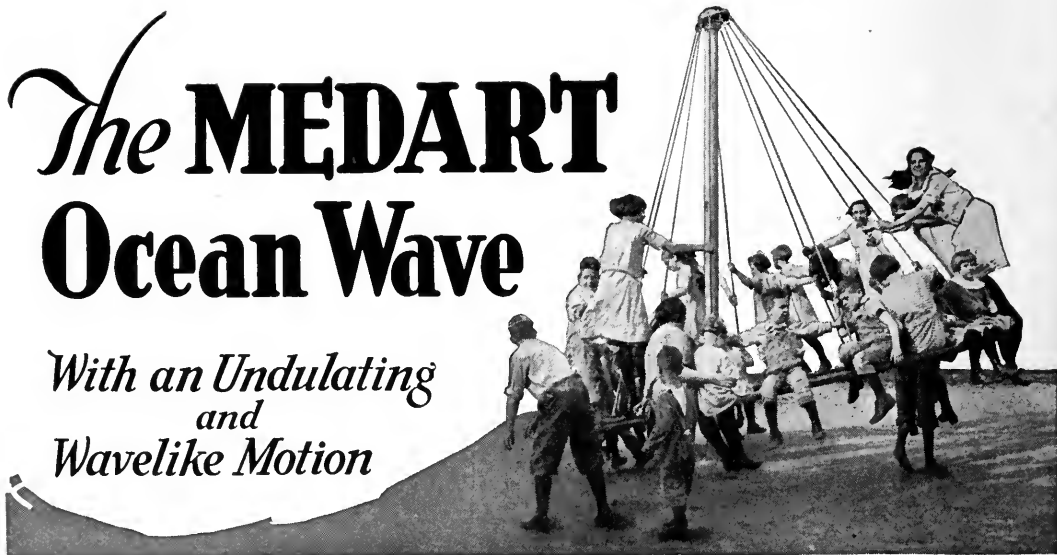
That reserves based upon general and local experience are being set aside from earnings to meet claims from injuries and damages, taxes, and insurance.

That partial rehabilitation of the property acquired from the Detroit Railway Company, to the extent described in this report, some of which might fairly be chargeable to capital, has been effected and paid for out of earnings. To finance from earnings the extensive pro-



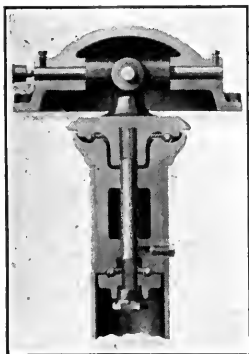
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gram of rehabilitation necessary to needed service, will require several years if uninterrupted by business depression. To complete such program promptly will necessitate either an issue of bonds or an increase in rate of fare.

That if earnings under existing conditions are applied toward rehabilitation, extensions to furnish satisfactory service must be provided by the issue of bonds or by an increase in rate of fare.

That the purchase contract for the acquisition of the Detroit United Railway lines,

although expedient under the then existing debt limitations, constitutes an unduly heavy financial burden, and it is suggested that consideration be given to its refinancing.

That a depreciation reserve, as such, has not been established, but it is understood that the Board of Street Railway Commissioners agrees such reserve is highly desirable as a means of determining actual property values, operating costs, and proper rate of fare, and contemplates the establishment of a depreciation account in the near future.

## The Municipal Bond Market

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

**N**EW municipal financing for the first half of this year reached a total of \$600,198,478. For the same period in 1922 the aggregate of municipal bonds was \$734,403,276. The largest monthly output of this year was in June, when a total of \$160,070,166 bonds were sold, this being the greatest since June, 1922, when \$169,994,241 bonds were floated.

Following the avalanche of bond issues floated in June, there was a marked absence of important offerings during July, the largest being a 4½ per cent \$5,500,000 Cleveland School District issue. Only \$700,000 of this issue was disposed of outright, the purchasers taking an option on the balance until August 1. The states of Michigan and Minnesota met with a similar reception when they offered \$5,000,000 and \$3,000,000 4½ per cent issues, respectively. When the four bids submitted for the Michigan bonds were opened, it was found that the best offer was for only \$2,000,000 of the issue. The state of Minnesota actually sold only \$1,000,000 of its \$3,000,000 issue, a 50 days' option being granted the purchasers on the remainder.

As the market has run into a period of extreme inactivity, dealers are reluctant to underwrite large issues. Many municipalities were obliged to reject all bids received in July, as, in their opinions, the prices

offered were too low. In most cases the interest rate was 4½ per cent.

The city of Dallas, Texas, refused to accept any of the bids received for \$3,325,000 4½'s, the Port of Portland, Ore., rejected bids for \$1,000,000 4½'s; Milwaukee County, Wis., was dissatisfied with tenders on \$4,300,000 bonds offered. The county of Hudson, N. J., failed to receive any bids for \$1,372,000 4½ per cent bonds.

When it is remembered that an unusual number of new issues was floated in the June market and that these securities are, to a considerable extent, still in the hands of dealers, it can easily be understood that any further issues offered during the dull midsummer weeks must be very attractive if they are to find buyers on reasonable terms:

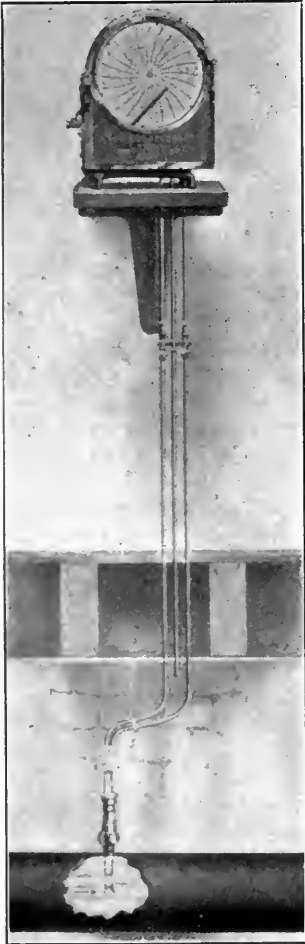
### IMPORTANT STATE AND MUNICIPAL BOND ISSUES SOLD DURING JULY

Amount	Borrower	Maturity	Rate (%)	Net Yield (%)
\$1,021,000	Pittsburgh, Pa.	1924-53	4½	6.05
500,000	Newburgh, N. Y.	1924-63	4 & 4½	4.14
2,000,000	Michigan	1943	4½	4.41
700,000	Cleveland, O., Sch. Dist.		4½	4½
568,000	Montgomery Co., Ohio, Sanitary Sewer District			
	No. 1	1926-40	5½	5.02
925,000	Asheville, N. C.	1925-64	6	5.21
1,000,000	Minnesota	1943	4½	4.42
1,000,000	Ramsey Co., Minn.	1924-43	4¾	4.64
1,250,000	Los Angeles, Calif.	1928-47	5	4.68
1,000,000	Woonsocket, R. I.	1924-33	5	5.15
600,000	Volusia Co., Fla.	1926-47	6	6.39

### An Economy Which We Cannot Afford

You can reduce your expenditure on armaments, as you can on personal indulgences, and expend it again later, with no great damage in the process. But with education it is otherwise. You are dealing there with the minds and bodies of children, and you may cripple a whole generation. The plain fact is that, so far from not being able to afford our present expenditure on education, we cannot afford to do without it. If there is one lesson more insistently taught us by the war and by daily experience, it is that the foundation of national strength and worth, as of national prosperity, is the education of the people.—From the *Manchester (England) Guardian*.

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# The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

## Ordinance Fixing a Schedule of Minimum Wages to Be Paid Employees on Public Work, Upheld

The Wisconsin Supreme Court has sustained the validity of an ordinance of the city of Milwaukee providing for a minimum wage scale to be paid by the city and its contractors and subcontractors to employees engaged in public work. (*Wagner vs. City of Milwaukee*, 192 Northwestern Reporter, 994.) The chief ground of attack on the ordinance was that it would largely increase the cost of public work, adding unduly to the burdens of the taxpayers. The Court said, in part:

"The charter provision that work shall be let to the lowest responsible bidder does not mean or require that the common council is bound to have such work done at the lowest possible cost. While it is true . . . the common council is but the trustee of the public, yet there is necessarily vested in it a wide field of discretion in the carrying out of its duties, and it, and not the courts, have the power and the corresponding responsibility, of determining the questions of general public policy in matters that affect the community as a whole. It has the power of determining as to the grade or quality of the material that is to be used in public work, and there is no charter provision or rule of law which binds it to select the cheaper rather than the higher priced or valued material for public work, and we can see no ground for judicial interference with the exercise of the same discretionary power by the common council in determining as to what shall be the grade as measured by the cost, as to the labor to be employed, any more than as to the cost or price of material. . . .

"The motives which may prompt a legislative body to act in any particular way within its powers is not within the field of judicial scrutiny either as to such subordinate legislative bodies as common councils . . . or the Legislature. If the result of the ordinance be, as claimed by plaintiff, an economic mistake, a municipal extravagance, and an improper burden upon the taxpayers, that result can be remedied rather by the ballot than by injunction."

The ordinance involved was adopted by the Milwaukee Council after the Supreme

Court had decided (188 Northwestern Reporter, 487) that an ordinance, fixing a minimum wage scale with reference to scales of wages in private employment, was invalid as virtually delegating to labor unions the fixing of wage scales for public work. The new ordinance avoided that objection by specifically fixing wages for various classes of work, ranging from 55 cents per hour for laborers to \$1.25 per hour for bricklayers.

## There Can Be No Civil Right of Action in Favor of a Municipality for Libel or Slander

The constitutional guaranty of freedom of speech and liberty of the press is so broad that not even malicious and false attacks upon a municipal government, as administered, will support an action for slander or libel to redress pecuniary injury sustained by the municipality in its operation of public utilities, award of contracts, etc. The attacks may constitute a criminal attempt to overthrow the government by force or unlawful means, and therefore subject the guilty ones to prosecutions; but they are immune from civil liability to the municipality. This is the substance of the decision of the Illinois Supreme Court in the late case of *City of Chicago vs. Tribune Co.*, 139 Northeastern Reporter, 86.

The city sued defendant, alleging the publication in defendant's newspaper of articles in which it was falsely and maliciously charged that the administration had reduced the city to insolvency. It was pleaded that these publications injured the city in the sale of its bonds, in purchasing property, in awarding contracts, etc., entailing an aggregate loss of \$10,000,000.

The defendant demurred to the sufficiency of the city's pleading, asserting that no legal right of action was averred, as-

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Fully described in "Hollowspan Standard" No. 6.*

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The Commercial Association of Park Ridge, a suburban community near Chicago, gave careful study to the selection of the component parts in its new lighting system. The "ornamental" requirement led them irresistibly to the Massey Hollowspan design. The installation has attracted much favorable comment and the local people are enthusiastic over the improvement.

**MASSEY CONCRETE PRODUCTS CORPORATION**  
Peoples Gas Building Chicago

suming that the city should prove its allegations. The Circuit Court in Chicago sustained the demurrer, and the Supreme Court affirmed the judgment entered in defendant's favor.

The Supreme Court traces the history of the struggle for freedom of speech, through the beginnings of newspaper publication, the royal licensing of the press, and the adoption of our constitutional guaranty of freedom of the press. It is shown how an early English author referred to its being a crime "of great enormity, to endeavor to despoil" the state "of its best support—the veneration, esteem and affection of the people." It was considered a libel "wantonly to defame or indecorously to calumniate that economy, order and constitution of things which make up the general system of government of the country."

But, in 1883, another law writer, after the lapse of time, reflected a change in the law by stating that "nothing short of direct incitement to disorder and violence is a seditious libel."

The transient existence of the Sedition Act of 1789 passed by our Congress is mentioned, with a reference to cases where "recalcitrant spirits were thrown into jail for expression of opinions contrary to those entertained by the administration in power." Of the case in hand, the Court says:

"The fundamental right of freedom of speech is involved in this litigation, and not merely the right of liberty of the press. If this action can be maintained against a newspaper, it can be maintained against every private citizen who ventures to criticize the ministers who are temporarily conducting the affairs of his government. Where any person by speech or writing seeks to persuade others to violate existing law or to overthrow by force or other unlawful means the existing government, he may be punished . . . , but all other utterances or publications against the government must be considered absolutely privileged. . . .


"While for certain limited purposes it is often said that a municipality owns and operates its public utilities in its capacity as a private corporation and not in the exercise of its powers of local sovereignty, yet because of its proprietary rights it does not lose its governmental character. Its property is not subject to execution, nor to federal taxation, nor is the city subject to garnishment [in Illinois], and its so-called private property may, with exceptions, be taken from it by the state. . . . It is manifest that, the more so-called private property the people permit their governments to own and operate, the more important is the right to freely criticize the administration of

the government. . . . It is better that an occasional individual or newspaper that is so perverted in judgment and so misguided in his or its civic duty should go free than that all of the citizens should be put in jeopardy of imprisonment or economic subjugation if they venture to criticize an inefficient or corrupt government. We do not pass upon the truth or falsity of the publications nor the merits of the political controversy between the parties. We consider the question solely from the standpoint of public policy and fundamental principles of government. For the same reason that the members of the Legislature, judges of the courts, and other persons engaged in certain fields of the public service or in the administration of justice are absolutely immune from actions, civil or criminal, for libel for words published in the discharge of such public duties, the individual citizen must be given a like privilege when he is acting in his sovereign capacity. This action is out of tune with the American spirit, and has no place in American jurisprudence."

#### **An Ordinance Permitting Arbitrary Refusal of a Business License Is Void**

An ordinance adopted by the Common Council in Detroit purported to prohibit one from engaging in the jewelry business in the city without first obtaining a license from the Mayor. It also provided for revocation of such licenses at the will of the same official. The ordinance is invalid, according to the decision of the Michigan Supreme Court in the case of *Samuels vs. Couzens*, 193 Northwestern Reporter, 212, for the following stated reasons:

"This ordinance is too indefinite to lend any authority to the administrative officers of the city; it declares no policy to be carried out in the interest of the public health, peace, morals, or welfare, provides no regulations, and grants, without curb or declaration of legislative purpose, arbitrary power to the mayor under which he may license or refuse to license at will. In undertaking to regulate a trade or business an ordinance should at least express an idea upon the subject of regulation, and not leave to an administrative officer the formulation of a policy wholly legislative in origin and nature. This ordinance is no more than a delegation of an exercise of the police power to the arbitrary will of the mayor, because it defines no public policy or purpose, does not speak in regulatory terms, conveys no idea of an end desired, avows no object to be accomplished by way of means prescribed, saves no rights to persons wanting to engage in the legitimate business of retailing jewelry, for it fixes no conditions to be met, and so offends against elementary principles governing delegated administrative functions under the police power as to render it wholly void."



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# Hints, Helps and Happenings

## Playground Assistance for Small Communities

**T**HE Harmon Foundation, through its Division of Playgrounds, is offering substantial help to chambers of commerce and other civic bodies toward the establishment of permanent play places in small towns.

One plan of the Foundation by which any town may secure a play site involves the purchase of land by the Foundation and the leasing of it without cost, except the payment of taxes, to the Town Council, School Board, or other responsible organization, for a period of five years, with the option to purchase before or at the expiration of the lease, at exact cost plus interest at the rate of 4 per cent per annum. The maximum amount which the Foundation invests under this offer is \$2,000, and its plan is to secure for the play site not less than two acres, except in rare cases where land is exceptionally high.

This offer is made to meet a vital need for play places in those towns where this need is recognized but where, on account of local conditions, funds to purchase the land are not, for the time, available. Under this plan the lessee and other local organizations interested can at once proceed with the development of a play field, the title to which they are assured of, upon exercising the option, regardless of any advance in real estate and regardless of the demand for such sites for building or industrial purposes.

In those communities where a program for the acquisition of land for a permanent play site is being anticipated, but where some stimulus is needed to make this program a reality, the Harmon Foundation is offering to make a direct contribution, up to 25 per cent of the purchase price of the land, the maximum of this offer being 1,000.

The only purpose of the Division of Playgrounds of the Harmon Foundation is to see to it that permanent play places are established in those towns where provision for such has not already been made. Through the help offered it hopes to stimulate communities toward making such provision.

Further information may be secured directly from the Division of Playgrounds of the Harmon Foundation, 140 Nassau Street, New York.

## 500 Prizes for Traffic Safety Studies by School Children and Teachers

**F**IVE hundred prizes, totaling \$6,500, are offered by the National Automobile Chamber of Commerce to school children and teachers for the best essay and lessons on how to promote safety on the highways. A trip to Washington with all expenses paid is the award for the best essay by a school child and the best lesson by a school teacher.

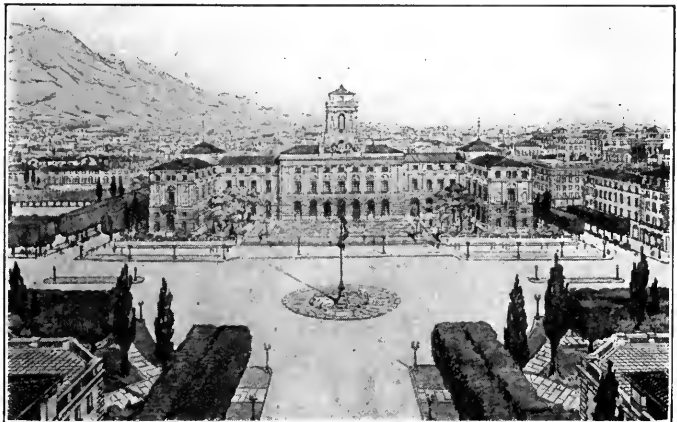
The actual competition will begin in the fall, but the summer season offers an opportunity for traffic safety study and campaigning in every community. Details of the contest may be obtained from the Highway Education Board, Willard Building, Washington, D. C.

Prizes are also given for the best essays by school children concerning safety on rural highways. This contest is conducted by the National Grange, Master's Office, Fredonia, N. Y.

## Pasadena Approves City Plan and Votes Bonds for Civic Center

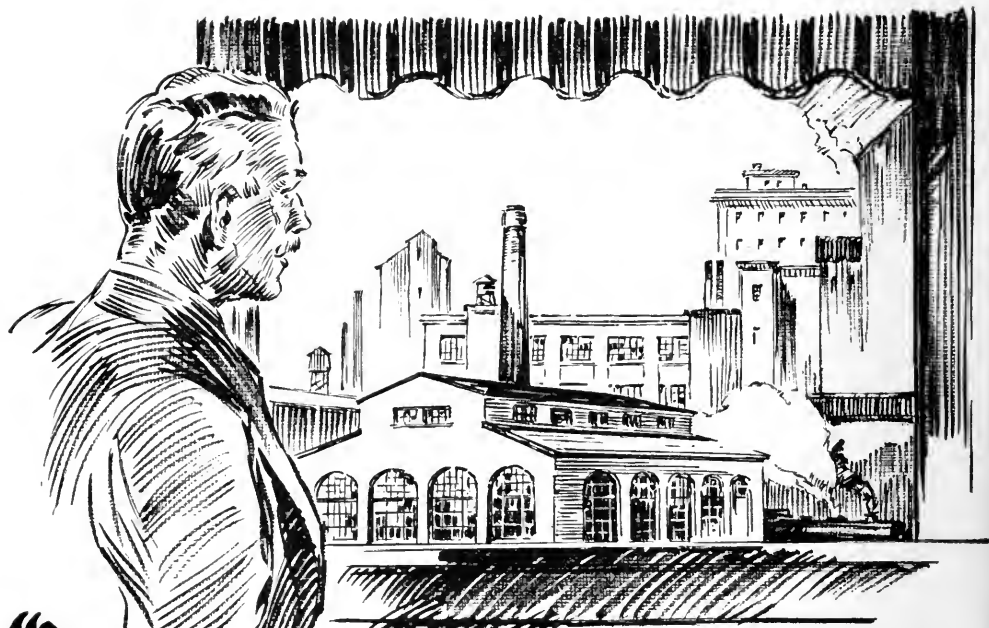
**B**Y a four-to-one vote, the citizens of Pasadena, Calif., gave official approval on June 7 to a comprehensive plan for the development, extension and improvement of the entire city. The plan had previously been adopted by the City Planning Commission and the City Council.

At the same election bonds to the amount of \$3,500,000 were voted to carry out one of the important features of the city plan—the establishment of an adequate civic center. The bonds will pay for the civic center site and for three chief municipal buildings—the city hall,



*Pacific Press Syndicate Photo*

**TYPE OF PROPOSED CITY HALL, PASADENA CIVIC CENTER**



## ***"That's a Good Steam Plant— Let's Put It to Work Again!"***

"We abandoned it when we started to take power from the new transmission line. We could scrap the plant—it has been wiped off the books through depreciation—but *it will make steam as efficiently as ever.*"

"We'll put down some underground mains and sell the steam for heating nearby buildings."

During the past 46 years this company has designed or installed more than 400 community heating systems. We are now constructing additional steam mains in Grand Rapids, Lockport, Pittsburgh, Cedar Rapids, St. Louis, Bristol, Scranton, St. Joseph, Mo., Erie and Salt Lake City, which shows conclusively that the sale of steam is profitable.

Have *you* an unused steam plant or a quantity of surplus steam? If so, write us for information about costs and profits of community heating systems; ask for Bulletin 20-AC.

### AMERICAN DISTRICT STEAM COMPANY

GENERAL OFFICES AND WORKS  
NORTH TONAWANDA, N.Y.

*Offices:*

New York

Chicago

Philadelphia

St. Paul

Seattle

# ADSCO HEATING

public library and civic auditorium. The new group of buildings will be in the geographical center of the city and readily accessible from every part of the community. It is proposed to have plazas at the focal points, forming approaches to the buildings and adding much to their artistic effect and dignity.

## Anniversary of the Constitution to Be Commemorated September 17

**"T**O further a wide-spread observance of the anniversary of the Constitution of the United States during the week of September 17 each year; to stimulate a study of the discussions involved in its writing, adoption, interpretation and administration; to arouse a keener appreciation of its value and importance as an aid to solving present-day problems; and to bring about a clearer understanding of that great document for the general welfare of this generation and posterity"—these are the purposes for which the Constitution Anniversary Association was recently organized. In a circular issued by Harry F. Atwood, President of the Association (28 East Jackson Boulevard, Chicago), the suggestion is made that all organizations and clubs which hold weekly luncheons—Chambers of Commerce, Rotary Clubs, Kiwanis Clubs, Lions Clubs, Exchange Clubs and others—be urged to make "The Constitution" the topic of discussion at their luncheons during the week of September 17, and that

where possible they unite the clubs of the city in one large meeting.

## Better Films Matinees for Children

**U**NUSUAL success in conducting Saturday morning motion-picture matinees for children is reported by Better Films Committees located in the southeastern states. Programs are put on under the joint auspices of the local exhibitor and the committee on better films. It is stated that every Saturday morning the theaters are well filled with youngsters who view pictures which have been selected for this particular occasion. The Better Films Committees have a part in the selection of the pictures, see that the youngsters are properly supervised, and make sure that the whole atmosphere of the entertainment is wholesome. An admission charge of ten cents is usually made.

## Growing Sentiment Against Carnival Companies and Traveling Street Fairs

**T**HE *Illinois Journal of Commerce* for July publishes an article by J. H. Hudson, Secretary of the Bloomington Association of Commerce, under the heading: "Good-Bye to Carnival Companies and Street Fair Fakers—Many Illinois Cities and Counties Are Passing Ordinances and Rules Prohibiting These Gentry from Corrupting Community Morals." The article is based on a survey conducted by Mr. Hudson on behalf of the Service Committee of the Illinois Chamber of Commerce, the results of which are summarized:

"Replies received from chambers of commerce in thirty-five cities throughout the state indicate the fact that a carnival company cannot light inside the city limits, and in a number of county-seats boards of supervisors have passed resolutions prohibiting traveling carnival companies from showing within several miles of the county court house.

"According to the survey, the following cities have ordinances prohibiting these shows from exhibiting within the city limits: Aurora, Bloomington, Beardstown, Cairo, Charleston, Clinton, Dixon, Elgin, Hoopston, Joliet, LaSalle and Monmouth. There are no doubt scores of other towns which have adopted such ordinances."

[For data on The Menace of Traveling Carnivals, see article under that title in THE AMERICAN CITY for October, 1922, pages 316-318.]

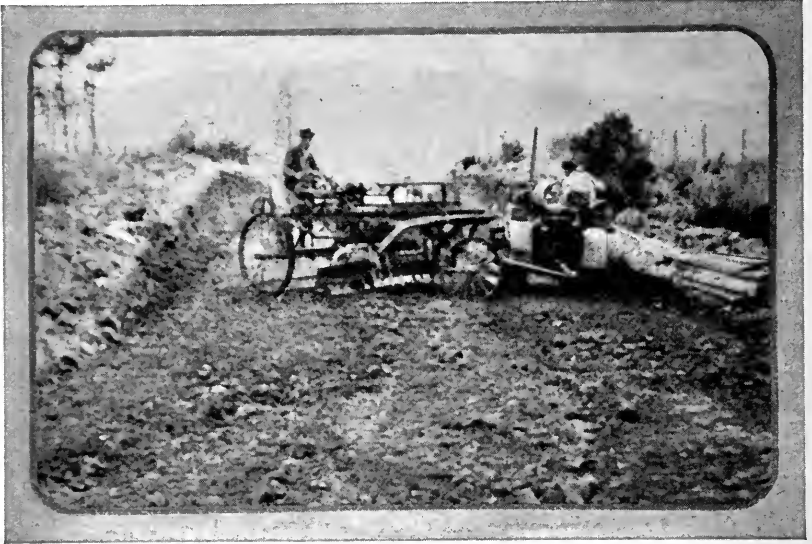


A CARTOON WHICH HELPED PROVIDENCE TO GET A ZONING LAW

## School Dental Clinic at Trondhjem, Norway

**T**HE results of an interesting and successful experiment in dental hygiene, as demonstrated by the dental clinic of the public schools at Trondhjem, Norway, are set forth in a recent report by Dr. Otto Ottesen, who states that this clinic has been in operation for 13 years, having begun with the entering first-grade class in 1910. Each year since that date, the new first-grade class has been examined and treated, and the treatment begun with the first grades in earlier years has been continued. At the time of the report all of the eight grades of the public schools were under treatment.

The school children are called in for examination and treatment once each year; and unless a child brings a certificate from a private



## **“PROFITABLE”**

*“I consider the BEST TRACTOR to be the cheapest and most profitable piece of machinery I have ever owned for use in highway contracting,” writes a contractor\* in Ohio who uses his BEST “Thirty” for pulling a grader, scarifier and plows, removing stumps, moving buildings and running centrifugal pump.*

( \*Name on request)

Write for a list of owners and watch BEST TRACTORS work on jobs similar to your own. Ask for the 1923 catalog which describes both the “Sixty” and the “Thirty.”

**C. L. BEST TRACTOR CO.**  
SAN LEANDRO, CALIFORNIA

127 Montgomery St.  
San Francisco, Calif.

*Sales Branches*  
Distributing Warehouse  
820 N. Second St.,  
St. Louis, Mo.

30 Church St.  
New York City

# **BEST TRACTORS**

67-823

dentist stating that dental treatment has been completed, examination and treatment at the public-school dental clinic are obligatory.

The total population of Trondhjem in 1922 was 55,500. There were 7,326 children between the ages of 8 and 15 in the public schools, and 1,169 children of this same age-group in other schools. The report states that all of these children appeared at the clinic; 98 per cent came for treatment, only 2 per cent having taken private treatment.

—Public Health Reports.

## Progress of the Plan of New York and Its Environs

FREDERIC A. DELANO, who has been selected to take the place of the late Charles D. Norton as Chairman of the Committee on the Plan of New York and Its Environs, announces that on October 1 the enterprise will enter upon a new stage. Thus far its work has been primarily the collecting of material as a foundation for a plan. By October sufficient material will be in hand to permit the emphasis to be laid more and more upon actual planning. Special reports are due at that time from a group of economists who are studying the ten major industries of New York City; from members of the staff of the Russell Sage Foundation who have been studying housing throughout the region, and parks and playgrounds in congested districts; from a group of regional planners who have been studying the territory within a radius of about fifty miles from New York; from specialists in the law of city planning, on the legal aspects of the water-front and other problems of regional planning; and from a number of architects who are now engaged upon a study of certain problems on Manhattan Island.

When, therefore, Frederick P. Keppel, now acting as Executive Secretary of the Committee, retires on October 1 to become President of the Carnegie Corporation, the general responsibility for directing and administering the studies and operations to be carried on will be placed upon the shoulders of a professional city planner, Thomas Adams, who will become General Director of Plans and Surveys.

Mr. Adams has been acting since January 1 as Chairman of the Advisory Planning Group. He has had extended experience in city planning both in this country and in Canada and in England, and is in charge of the courses on this subject in the Massachusetts Institute of Technology. The other members of the staff will continue in charge of their special fields as follows:

Nelson P. Lewis, formerly Chief Engineer of the Board of Estimate and Apportionment, to direct the physical and topographic studies; Shelby M. Harrison of the Russell Sage Foundation, the social studies; Edward M. Bassett of the Zoning Committee, the legal studies; and Professors McCrea and Haig of Columbia University, the economic and industrial studies. Flavel Shurtleff will act as Secretary of the Committee and as a point of contact with the many groups engaged upon the study of local problems.

## A Reward Fund for the Apprehension of Murderers of Police Officers

THE citizens of St. Louis, Mo., have shown their appreciation of the work done by the Police Department of their city by pledging over \$250,000 for the creation of a reward fund to be used for the apprehension of murderers of police officers. The plan of forming such a fund was evolved by Colonel Philip H. Brockman, President of the St. Louis Board of Police Commissioners, in October last, when it was evident that the unwarranted killing of police officers was becoming a serious menace to the city.

An appeal was embodied in a letter sent to many prominent business men, and later a personal canvass among the business firms was made by two members of the Police Department. The goal of \$250,000 has now been over-subscribed, and many of those contributing have declared their willingness to increase their subscriptions, should that become necessary. The plan, as submitted in the letter sent out by Colonel Brockman, is to have the fund available, so that the subscribers can be drawn upon at any time that money is required to offer a reward for the arrest of the murderer or murderers of policemen killed in the performance of duty, and that no subscriber will be called upon for more than 10 per cent of his pledge in any one year.

## Salaries of Superintendents of Municipal Lighting Plants

THAT municipalities operating their own electric lighting plants are, as a rule, by no means overpaying the superintendents on whose ability and energy the successful operation of the plants so largely depends, is indicated by the little table which follows. This is based on salary figures recently furnished, at THE AMERICAN CITY's request, by the Superintendent of the municipal lighting plant in each of 167 cities of various sizes throughout the United States.

Population	Number of Cities	Average Salary
Less than 10,000.....	149	\$2,019.65
10,000 to 50,000.....	12	3,448.00
Over 50,000.....	6	3,863.00

## The Chicken Problem in Iowa Towns

TOWNS that have had trouble in dealing with the problem of the small chicken farm on the residential street, may be interested in knowing what Iowa towns think it best to do with the matter. In *American Municipalities*, O. W. Steveson gives the result of an inquiry sent out to 150 Iowa towns asking among other questions the following: Do you prohibit chickens from running at large? If so, during what part of the year? Sixty-one towns replied. Of these, 38 have ordinances that prohibit the running at large of chickens at any time of the year, but a number of these ordinances are not strictly enforced. Fourteen towns have no such ordinances, and nine prohibit the freedom of chickens during part of the year.

*Cure new  
Concrete with*

# DOWFLAKE

CALCIUM CHLORIDE

## The Best Known Method of Curing Concrete— Eliminates Sprinkling

The experiments of State Highway Departments have brought to light a mass of new records of methods and results. Bureau of Standards tests now show us much that all road builders should know to keep up with modern methods.

### *Send for Book*

Our new book—**HOW TO CURE CONCRETE**—is full of meat for the man who would become familiar with the proper handling of this curing method. Write for this book.

DOWFLAKE has become classed as a necessity in concrete curing operations.

DOWFLAKE is coming into general use even where water and soil are easily available for ponding operations.

And it's better, too.

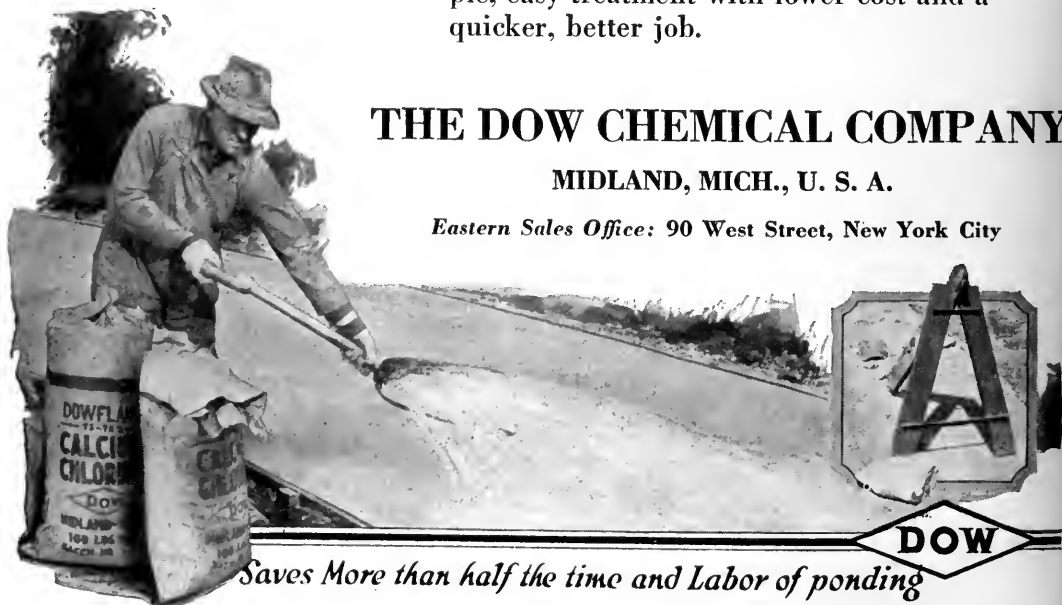
Just sprinkle DOWFLAKE on the concrete. It doesn't dry out as ponding operations do. It doesn't have to be watered every little while. The inspector knows the top is always wet. This chemical draws and absorbs the needed moisture—keeps it in intimate contact with the concrete and holds the moisture there more uniformly. It hastens the cure—gives a more uniform cure at such a low cost no road builder can afford to do without it.

Remember—no sprinkling—just a simple, easy treatment with lower cost and a quicker, better job.

## THE DOW CHEMICAL COMPANY

MIDLAND, MICH., U. S. A.

Eastern Sales Office: 90 West Street, New York City

An illustration showing a construction worker wearing a hat and work clothes, using a long-handled tool to apply a substance from a bag onto a concrete surface. In the foreground, there are two bags of Dowflake Calcium Chloride. One bag is clearly labeled 'DOWFLAKE', '75-75%', 'CALCIUM CHLORIDE', and 'DOW'. The other bag is partially visible. To the right of the worker, there is a shield-shaped logo with a large letter 'A' inside. Below the illustration, the text 'Saves More than half the time and Labor of ponding' is written in a stylized font. At the bottom right, there is a diamond-shaped logo with the word 'DOW' inside.

*Saves More than half the time and Labor of ponding*

## Financial Possibilities of the City Manager Profession

ON September 1, 1923, Charles E. Ashburner, now City Manager of Norfolk, Va., becomes City Manager of Stockton, Calif., at a salary of \$20,000 per annum. Believing that a record of Mr. Ashburner's rise in his profession might be an inspiration to other high-grade men desirous of making public service a life work, THE AMERICAN CITY has requested a statement of the facts, and this Mr. Ashburner has furnished, as follows:

"Replying to your letter of July 14, with reference to the cities I have served as City Manager:

"April 3, 1908, to July 1, 1911, at Staunton, Va. First year salary, \$2,000; remainder of term, \$2,500 per annum.

"June 1, 1914, to September 1, 1918, Springfield, Ohio, at \$6,000 per annum.

"September 1, 1918, to September 1, 1923, Norfolk, Va., at the following salaries: first year, \$9,000; second year, \$12,000; third year, \$16,000; fourth and fifth years, \$14,000. In this connection I beg to advise that a reduction in salaries was considered by the City Council of Norfolk, and with a general recommendation in reduction I recommended a 25 per cent decrease in my own salary. A 12½ per cent cut was made, bringing my salary from \$16,000 to \$14,000.

"I will assume the duties as City Manager of Stockton, Calif., as of September 1, 1923, at \$20,000 per annum.

CHARLES E. ASHBURNER,  
City Manager."

## Awards to Cities for Progressive Community Health Service

TO stimulate a spirit of generous rivalry between communities in the attainment and advancement of community health service, announcement of plans for a series of awards is made by the American Public Health Association. The first series of awards will be made to cities of a population of 100,000 or over which show the most nearly adequate community health service as of January, 1924. Selection of the winners will be based not only on actual attainment, but also upon progress since January, 1924. The method of rating will be discussed and determined upon at the

Fifty-second Annual Meeting of the American Public Health Association, to be held in Boston, October 8-11, 1923.

The development of the public health program has been so rapid in recent years that it is by no means easy for the city health officer to make sure that he is keeping up with the procession or that he is doing the most important things first and doing them in the best way. In order to clarify the situation, the American Public Health Association some three years ago appointed a Committee on Municipal Health Department Practice, of which Professor C. E. Winslow is Chairman, and which includes such distinguished sanitarians as Dr. C. V. Chapin of Providence, Dr. Haven Emerson of New York City, Dr. Donald B.

Armstrong of the National Health Council, Professors Freeman and Frost of Johns Hopkins University, and Dr. L. R. Thompson of the United States Public Health Service. The survey conducted by this Committee in eighty-three cities will be published during the fall as a special bulletin by the United States Public Service, and it is now announced that through the cooperation of the United States Public Health Service on the one hand and the Metropolitan Life Insurance Company on the other, the work in which this Committee has been interested is to be continued and greatly extended.

Surgeon General Cumming of the United States Public Health Service has agreed to establish an office of Administrative Health Practice (under the direction of Surgeon Paul Preble) to work in cooperation with the American Public Health Association. The records now in possession of the Committee on Municipal Health Department Practice will be made available for the new office, and the new information obtained in Washington will at all times be at the disposal of the members of the Association.

### July 4th and Election Day

The most powerful men I have known are the quietest men; when a man has real and great power, he doesn't have to be noisy. Noise is power wasted.

Can you hear a lead pencil making a mark on a piece of paper? And yet, the greatest power in our country is shown only by the gentle gliding of millions of lead pencils on pieces of paper—on election day.

The power of voting—of drawing little crosses, X's—on a ballot in an election booth, is the greatest power we know in all this land of ours.

Your true-blue patriot is the fellow who follows his skyrocket on the Fourth of July with his vote on election day. Fourth of July is the Play Day of patriotism; election day is the Work Day.

—WILLIAM G. SHEPHERD, in  
*The American Boy.*

### True Education

The entire object of true education is to make people not merely *do* the right things, but *enjoy* the right things; not merely industrious, but to love industry; not merely learned, but to love knowledge; not merely pure, but to love purity; not merely just, but to hunger and thirst after justice.—JOHN RUSKIN.





## Standard for world highways

That's the position *won and now held* by Trinidad Lake Asphalt—the ages-old, ages-seasoned paving material—*through its remarkable record of service under every condition of traffic and climate.*

No other type of paving even approaches it in long-lasting, low-cost service. Nor in attractiveness, ease of cleaning, ease of repair and freedom from noise.

Thousands of square yards of Trinidad pavements—in many parts of the world—are from 30 to 40 years old and *still in splendid condition.* What other bituminous material can even approach this record?

Write at once for “service records” of this wonderful material.

THE BARBER ASPHALT COMPANY  
PHILADELPHIA

New York

Chicago

Pittsburgh

St. Louis

Kansas City

# TRINIDAD LAKE ASPHALT

## Baby Parades

**I**N summer the public is divided into three classes—those that like baby parades, those that do not like baby parades, and the babies.

There is no way of knowing whether babies enjoy baby parades or not. Some babies cry while passing given points, some laugh and some just inspect their thumbs. But that is what they would be doing wherever they were, so there is no criterion here.

Baby parades have caused more heartaches, sunburn and sore feet than any other institution under the general head of pleasure. Giving first prize to each baby would prevent the heartaches, but would do nothing for the sun blisters and painful arches.

Babies have no apparent desire to enter baby parades, not developing the parade fever until they are of age and join uniform ranks of various lodges, and then only if they are boy babies.

But the babies have got to parade or there couldn't be a successful summer season anywhere from the Palisades to Cape May.

Perhaps the babies enjoy this sort of thing, the committee of arrangements going ahead on this assumption, anyhow, but many a citizen has lived to doddering old age without being able to live down the fact that he once took a prize in a baby parade.

Baby parades consist of decorated babies, floats and mothers.

Mothers go to the shore to rest, and before Labor Day have nervous breakdowns through worrying over how to dress their babies for the parades.

The only persons around the summer resorts who are not getting worked up about the baby parades are the babies, but they will have babies of their own some time.

—Jean Eric, in the *Newark Evening News*.

## On the Calendar of Conventions

AUGUST 7-10.—WALLACE, IDAHO.

*Pacific Coast Association of Fire Chiefs. Annual convention.* Secretary, Jay W. Stevens, 205 Merchants Exchange Building, San Francisco, Calif.

AUGUST 14-16.—OTTUMWA, IOWA.

*League of Iowa Municipalities. Annual convention.* Secretary, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 19-SEPTEMBER 1.—EVANSTON, ILL.

*National School for Commercial and Trade Executives.* Address: Board of Managers, National School for Commercial and Trade Executives, 10 South LaSalle Street, Chicago, Ill.

AUGUST 20-23.—HARRISBURG, PA.

*Association of American Cemetery Superintendents. Annual convention.* Secretary, W. B. Jones, Highwood Cemetery, Pittsburgh, Pa.

AUGUST 21-23.—BETHLEHEM, PA.

*League of Cities of the Third-Class in Pennsylvania. Annual convention.* Secretary, Fred H. Gates, City Clerk, Wilkes-Barre, Pa.

AUGUST 24-25.—GLACIER PARK, MONT.

*Montana Association of Commercial Organization Secretaries. Annual convention.* Secretary, Lyman E. Jones, Great Falls, Mont.

AUGUST 30-SEPTEMBER 1.—SHAWINIGAN FALLS, QUE.

*Union of Canadian Municipalities. Annual convention.* Secretary-Treasurer, A. D. Shibley, 10 St. John Street, Montreal, Que.

SEPTEMBER 10-13.—TORONTO, ONT.

*Public Ownership League. Biennial Public Ownership Conference.* Secretary, Carl D. Thompson, 127 North Dearborn Street, Chicago, Ill.

SEPTEMBER 10-14.—CORONADO, CALIF.

*League of California Municipalities. Annual convention.* Executive Secretary, William J. Locke, Pacific Building, San Francisco, Calif.

SEPTEMBER 10-17.—KANSAS CITY, MO.

*American Institute of Park Executives. Annual convention.* Secretary-Treasurer, W. O. Doolittle, Minot, N. Dak.

SEPTEMBER 13-19.—BOSTON, MASS.

*American Prison Association. Annual convention.* General Secretary, E. R. Cass, 135 East 15th Street, New York, N. Y.

SEPTEMBER 18-21.—BURLINGTON, VT.

*New England Water Works Association. Annual convention.* Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 25-28.—READING, PA.

*International Association of Municipal Electricians. Annual convention.* Secretary, Clarence R. George, City Electrician, Houston, Texas.

SEPTEMBER 27-28.—CHICAGO, ILL.

*International Association of Street Sanitation Offi-*

*cials. Annual conference.* Secretary, A. M. Anderson, 10 South LaSalle Street, Chicago, Ill.

OCTOBER 1-5.—BUFFALO, N. Y.

*National Safety Council. National Safety Congress.* Executive Secretary, W. H. Cameron, 168 North Michigan Avenue, Chicago, Ill.

OCTOBER 8-11.—BOSTON, MASS.

*American Public Health Association. Annual meeting.* Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

OCTOBER 8-12.—SPRINGFIELD, ILL.

*Playground and Recreation Association of America. Recreational Congress.* Secretary, H. S. Braucher, 315 Fourth Avenue, New York, N. Y.

OCTOBER 8-13.—NEW YORK, N. Y.

*National Fire Prevention Exposition.—One of the features of Fire Prevention Week.* Address: Temporary Executive Headquarters, 25 East 26th Street, Room 1014, New York, N. Y.

OCTOBER 10-12.—INDIANAPOLIS, IND.

*Indiana Municipal League. Annual meeting.* President, Eli F. Seehirt, Mayor, South Bend, Ind.

OCTOBER 15-17.—DETROIT, MICH.

*American Child Health Association. Annual meeting.* Secretary, Philip Van Ingen, M. D., 370 Seventh Avenue, New York, N. Y.

OCTOBER 23-26.—RICHMOND, VA.

*International Association of Fire Engineers. Annual convention.* Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.

OCTOBER 29-31.—CINCINNATI, OHIO.

*National Association of Commercial Organization Secretaries. Annual meeting.* Secretary-Treasurer, Joseph F. Leopold, 301 Crocker Building, Des Moines, Iowa.

NOVEMBER 12-16.—ATLANTA, GA.

*American Society for Municipal Improvements. Annual convention.* Secretary, Charles Carroll Brown, P. O. Box 234, St. Petersburg, Fla.

NOVEMBER 13-15.—WASHINGTON, D. C.

*City Managers' Association. Annual convention.* Executive Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 15-17.—WASHINGTON, D. C.

*National Association of Civic Secretaries.* Secretary, Robert E. Tracy, Secretary City Club, Philadelphia, Pa.

NOVEMBER 15-17.—WASHINGTON, D. C.

*National Municipal League. Annual convention.* Secretary, H. W. Dodds, 261 Broadway, New York, N. Y.

JANUARY 13-19, 1924.—CHICAGO, ILL.

*American Road Builders' Association. Annual convention.* Secretary, Ethel A. Birchland, 37 West 39th Street, New York, N. Y.

## IS YOUR CITY PLANNING MUNICIPAL MOVIES?

If so, it will pay you  
to inquire into the merits  
of the

*Simplex*

Projector

*"The world's finest motion picture machine"*

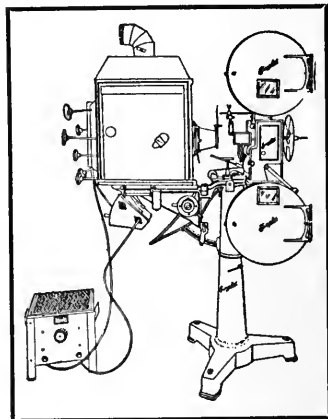
THE BEST THEATRES EVERYWHERE  
ARE SIMPLEX EQUIPPED

GO TO YOUR NEAREST THEATRE AND  
SEE THE SIMPLEX IN OPERATION

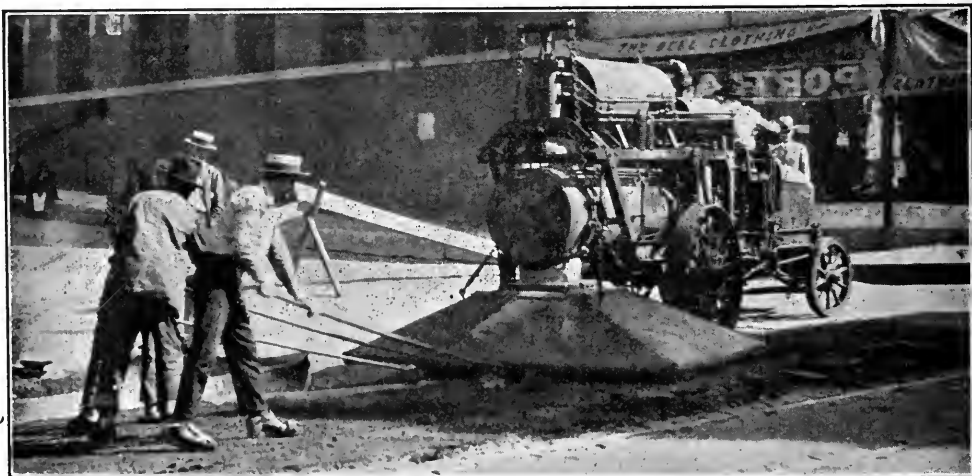
*Then write us for catalog "D"*

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## MAKE BETTER ASPHALT STREET REPAIRS



**The Improved Equitable Asphalt Heater Softens 1500 Square Yards a Day**

Proper bonding of old and new asphalt is made possible by this fool proof machine which does not require hot water to operate. The heating hood slides on the ground saving time and heat. The machine heats 45 square feet of pavement in 1 to 2 minutes and moves quickly ahead. Send for our new prices and specifications.

**THE EQUITABLE ASPHALT MAINTENANCE COMPANY**  
1901 Campbell Street Kansas City, Mo.

# Municipal and Civic Publications

Prices do not include postage unless so stated

**Proceedings of the Fifteenth National Conference on City Planning.**—Held at Baltimore, Md., April 30, May 1-2, 1923. Apply to the Secretary of the Conference, Flavel Shurtleff, 130 East 22nd Street, New York, N. Y. 221 pp. \$2.25.

This volume contains the following papers, with discussion: Regional and Metropolitan Planning—Principles, Methods, Cooperation, by George B. Ford; Inter and Intra Urban Transit and Traffic as a Regional Problem, by George A. Damon; The Relation of Washington to a Plan of the Baltimore Region, by Major R. A. Wheeler; A Regional Plan for Maryland, by Jefferson C. Grinnalds; Regional Zoning, by Robert Whitten; Present Attitude of Courts toward Zoning, by Edward M. Bassett; School Building Program in Relation to City Planning and Zoning in Baltimore, by Henry G. Perring; Water Supply and the Baltimore Plan, by William A. Megraw; The Major Street System for Baltimore, by Joseph W. Shirley; Day and Night Storage and Parking of Motor Vehicles, by Hugh E. Young. Also discussion of the following questions: How Can Narrow Streets in Business Districts Be Widened?; Should Playgrounds Be Established in Public Parks and What Should Be Their Relation to the School System?

**Public Utility Rates for 542 Kansas Cities.**—Bulletin No. 40 compiled by the Municipal Reference Bureau, University Extension Division, University of Kansas, January 1, 1923. Published by the League of Kansas Municipalities, Lawrence, Kans. July 1, 1923. 128 pp.

This book is believed by the publishers to be the most comprehensive compilation of water, electric light and power, gas, and telephone rates ever published in any state in the Union. Besides the rates for water and electric light and power services, it gives the source of the water, its treatment, meter service, capacity of plant, rate for city service, minimum bills, and whether the plant is a paying proposition or not.

**The Tuberculosis Worker.**—By Philip P. Jacobs, Ph.D., Publicity Director, National Tuberculosis Association. Williams & Wilkins Company, Baltimore. 1923. 314 pp. \$3.00 in United States, Canada, Mexico and Cuba; \$3.50 in other countries.

A handbook on methods and programs of tuberculosis work. The success of the campaign against tuberculosis depends upon the faithfulness and intelligence of the workers. This book gives them the practical information that they need in dealing with their problems of methods and means in every department of the work. The experience and observations of many workers in different countries have here been brought together to show authoritatively how the work may be systematized and coordinated, and be made interesting and effective. The book is thorough and readable, besides being a valuable reference volume, with excellent bibliographies.

**The Cleveland Year Book, 1923.**—Compiled and published by the Cleveland Foundation. Editor, Mildred Chadsey. June, 1923. 185 pp. 75 cents.

This is the third annual summary of events and progress in Cleveland. Its purpose is to record the events in all departments of organized life in Cleveland that seem to have had some part in making or retarding progress or influencing the life of the people. It is not controversial in its presentation. The information is given under the heads of City Government, Public Utilities, Business and Banking, Labor, City Planning and Building, Public Safety, Public Health, Education, Americanization, Social Work, Recreation, The Arts, Religion, A Survey of Surveys.

**Selected Articles on Current Problems in Municipal Government.**—Compiled by Lamar T. Beman, A.M., LL.B., Attorney at Law, Cleveland, Ohio. In the Handbook Series published by The H. W. Wilson Company, New York. 1923. XIII + 542 pp. \$2.40.

Material from sources of varying dates for use by civic associations, debating clubs and individuals in the study of local governmental problems. Both sides of controversial questions are presented. Classified bibliographies are given on the different divisions of the subject as outlined in the four parts of the volume: General Discussion of City Government; Municipal Home Rule; The Commission Plan; City Manager Plan.

**Taxing Gasoline for Highway Improvement.**—Editorial review in "Engineering News-Record," June 14, 1923, McGraw-Hill Company, Inc., Tenth Avenue at 36th Street, New York, N. Y. 2½ quarto pp. Price of issue, 25 cents.

The facts about the results of the gasoline tax for road maintenance in each state of the Union are here brought together for the first time, as the fruit of an investigation made by the "Engineering News-Record." The information is given under the heads of Amount and Rate. Taxable and Exempt Products, Tax Collection, Tax Distribution, and Opposition to Gasoline Tax. Summarizing figures give evidence that the taxation of motor vehicle fuels is considered throughout the country sound procedure for creating funds for constructing and maintaining public roads.

**Acoustics of Buildings, Including Acoustics of Auditoriums and Soundproofing of Rooms.**—By F. R. Watson, Professor of Experimental Physics, University of Illinois, Urbana, Ill. John Wiley & Sons, Inc., New York. 1923. VIII + 155 pp. Photographs, diagrams, tables. Price, \$3.00.

City officials, builders and architects will be particularly interested in this well-prepared, complete book on the art and science of acoustics. It describes briefly the action of sound within buildings, covering echoes, reverberations and soundproofing. It is replete with the necessary mathematical formulas, which have been simplified through the results of experimental tests. Space is also devoted to the correction of acoustic difficulties found in many buildings.

**Municipal Bond Sales for the Year 1922.**—Published by "The Bond Buyer," 67 Pearl Street, New York, N. Y. 136 pp. \$10.00.

A record of the domestic and foreign government, state and municipal bond sales in the United States during the last calendar year, compiled from official and reliable reports made to "The Daily Bond Buyer," including a chart showing the trend of the municipal bond market 1900-1923 and a table giving a ten-year record of state and municipal bond sales—1913-1922. A new feature of this nineteenth edition of the record is the inclusion, in a great many instances, of the name of the legal opinion.

**The Deeside Regional Planning Scheme (Chester and Flintshire).**—The report prepared for the Joint Committee of Local Authorities, by Patrick Abercrombie, Sydney Kelly and Theodore Pyfe. Published for the University Press of Liverpool, Ltd., by Hodder & Stoughton, Ltd., London, England. 1923. XIV + 67 quarto pp. Maps, views, drawings. 7s. 6d.

A most interesting presentation of a regional plan, far-reaching in scope, dealing with a section in which attractive, healthful homes and efficient factories are of prime importance. The region includes the Roman, medieval and modern residential town of Chester and its surroundings, a partly industrialized area on both sides of the canalized river Dee, and the mountainous land rising from the Dee estuary frontage and affording good residential possibilities.

**The Cost of Government, City of Detroit, 1923-1924.**—The June 15, 1923, issue of "Public Business," published by the Detroit Bureau of Governmental Research, Inc. 20 pp. Tables. A summary of the final budget of Detroit, showing character of appropriations, and comparison with the budget of the preceding year. Amplifying also the information under the budget heads of Fixed Charges, Operation and Maintenance, Capital Costs (Improvements), and Deficits. (Apply to Lent D. Upson, Director and Secretary, Detroit Bureau of Governmental Research, Inc., Detroit, Mich.)

**The Commonwealth Fund Program for the Prevention of Delinquency.**—Published by The Joint Committee on Methods of Preventing Delinquency, 50 East 42nd Street, New York, N. Y. 16 pp. Republished from the fourth annual report of the General Director of the Fund, in revised form and brought up to date. A most interesting statement of the broad work of the Fund, which is concentrated on the understanding and development of the child by sound methods of study and training. Apply to The Joint Committee, as above.)

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**Proceedings, Twentieth Annual Convention, American Road Builders' Association.**—Held in Chicago, Ill., January 16-19, 1923. With supplements consisting of the revised constitution and a list of exhibitors at the Fourteenth National Good Roads Show. Edited by Robert K. Tomlin, Jr. VI + 228 pp. Illustrated. Instead of being a verbatim record of everything said at the convention, this book contains only the material of permanent value. The technical papers are printed in large, legible type, and the discussion in smaller type. The limp Fabrikoid binding gives a volume durable and pleasing in appearance. Price \$3. (Apply to the Proceedings Publishing Committee of the American Road Builders' Association, 37 West 39th Street, New York, N. Y.)

**Promoting Water Works in Small Towns and Villages.**—Published by the American Cast Iron Pipe Company, Birmingham, Ala. 30 pp. Diagram. A digest of the important phases of securing public water-supply systems, as observed by the publishers in a business closely related to such matters. (Apply to the publishers.)

**Sewage Treatment.**—Papers presented at the Fourth Conference on Sewage Treatment, Ames, Iowa, October 11-13, 1922. Bulletin 57 of the Engineering Extension Department of Iowa State College. May 14, 1923. 30 pp. Containing the following papers: The Relation of the State Board of Health to Iowa Sewage-Treatment Plants, by Hans V. Pedersen; The Relationship of Sewage Disposal to Water Purification, by J. J. Hinman; Sewage Treatment and Its Relation to Public Health, by Earle L. Waterman; Methods of Sewage Disposal, by Roland S. Wallis; The Role of Bacteria in Sewage Purification, by Max Levine; and The Activated-Sludge Process for Sewage Disposal, by Edward Bartow. (Apply to the Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa.)

**Inter and Intra Urban Transit and Traffic as a Regional Planning Problem.**—A paper read at the National Conference of City Planning, in Baltimore, May, 1923. By George A. Damon, Member, Board of Directors, Los Angeles City Club; Vice-Chairman, Los Angeles County Regional Planning Commission. Supplement to The Los Angeles City Club Bulletin of June 16, 1923. Published by order of the Board of Directors for the information of members and citizens interested in regional planning. 12 pp. Diagrams. (Apply to the Los Angeles City Club, Broadway at Eighth Street, Los Angeles, Calif.)

**Soft Drink Ordinance.**—A leaflet containing Buffalo's ordinance (Chapter XXIII) regulating the sale of non-intoxicating liquors and beverages, will be sent to any reader of THE AMERICAN CITY on application to Mayor Frank X. Schwab, City Hall, Buffalo, N. Y.

**Report of a Study of the Interrelation of the Work of National Social Agencies in Fourteen American Communities.**—This study was undertaken by a Conference of National Social Agencies through the National Information Bureau, and was made by Porter K. Lee and Walter W. Pettit, of the New York School of Social Work, and Jane M. Hoey. 157 pp. Forty-six national organizations were studied in the fourteen communities; only three of these organizations were represented in all the communities—the American Red Cross, the International Committee of Young Men's Christian Associations, and the National Tuberculosis Association. (Apply to the National Information Bureau, 1 Madison Avenue, New York, N. Y.)

**Report of Conference, Paris, 1922, International Garden Cities and Town-Planning Federation.**—Published by the Federation, 3, Gray's Inn Place, Gray's Inn, London, W. C. 1, England. 32 pp. Illustrated. Containing the following papers: "The Future of the International Garden Cities and Town-Planning Movement," by the Provisional Council (Senator Vinck, Henri Sellier, G. Montagu Harris, and C. B. Purdom); "The Garden Cities of England," by C. B. Purdom; "The Garden City as a Demonstration of Economic Town Building," by Sir Theodore Chambers; "The Garden City Movement in Relation to Town Development of the Future," by H. Chapman; "The Garden City Movement in Relation to the Development of Civic Education and Public Administration in France," by Henri Sellier. Including the discussion on these topics, with other information and the rules of the Federation. (Apply to the Federation.)

**Customs of Administration and Procedure as observed by the staff of the St. Louis Public Library.**—Not a body of rules or regulations, but a statement of the way things are customarily done in the Library, covering all details of the routine. Monthly Bulletin, July, 1923. 36 pp. (Apply to Arthur E. Bostwick, Librarian.)

**Proceedings of the New Jersey Sewage Works Association, 1922 and 1923.**—Containing the minutes of annual meetings held in Trenton on February 17, 1922, and March 14, 1923. Including the following papers: Operation of Pennypack Creek Sewage Treatment Works, Philadelphia, by H. M. Beaumont; Progress Report on the Sewage Experiment Substation, New Brunswick, by Professor R. O. Smith; Maintenance of Sewer Systems, by E. B. Besselièvre; Some Sewage Experimental Work Accomplished and Under Investigation at the Sewage Substation, New Brunswick, by William Rudolfs; The Licensing of Superintendents and Operators of Sewage Treatment Plants in New Jersey, by Charles H. Capen, Jr.; Superfluous Sewage Treatment Works, by M. N. Baker; Odors from Sewage Disposal Plants, by John R. Downes. 32 quarto pp. Price to non-members of the Association, \$1.00. (Apply to Myron E. Fuller, Secretary, 36 East Mt. Airy Avenue, Philadelphia, Pa.)

**The Industrial Utility of Public Water Supplies in the United States.**—By W. D. Collins. Water-Supply Paper 496 of the United States Geological Survey of the Department of the Interior. 1923. 59 pp. Map, diagram, tables. A very worth-while publication giving full and detailed information regarding the hardness of water furnished by public supply systems in over 300 cities, its effect on industrial and domestic use of the water, and the treatment of such supplies, to remedy the difficulties. Price 10 cents. (Apply to the Government Printing Office, Washington, D. C.)

**Predicted Growth of Population of New York and Its Environs.**—By Raymond Pearl and Lowell J. Reed, School of Hygiene and Public Health, The Johns Hopkins University. Published by Plan of New York and Its Environs, 130 E. 22nd Street, New York City. 1923. 42 pp. Diagrams, tables. Applying to this region a formula which has been developed to express the fundamental law of normal population growth. Price, 25 cents. (Apply to the publishers.)

**Facts and Figures of the Automobile Industry.**—Published by the National Automobile Chamber of Commerce, 366 Madison Avenue, New York, N. Y. 1923. 96 pp. Illustrated. A compendium of information regarding the production, use, and regulation of all kinds of motor vehicles. (Apply to the publishers.)

**Ku Klux Klan.**—Julia E. Johnsen, compiler. Volume 1, No. 10 of "The Reference Shelf," May, 1923, published by The H. W. Wilson Company, 958-964 University Avenue, New York, N. Y. 105 pp. This book claims to present, without bias, arguments both for and against the justification of the Ku Klux Klan. The material has been culled from sources which the compiler believes to be representative, with the purpose of quoting only authoritative facts. Price 75 cents. (Apply to the publishers.)

**Charleston, S. C.**—Sixth Annual Report of the Water Department for the year 1922. (Apply to J. E. Gibson, Manager and Engineer.)

**Chicago, Ill.**—Annual Reports of Police Department for 1921 and 1922. (Apply to Chas. C. Fitzmorris, Superintendent of Police.)

**Fredericksburg, Va.**—Annual Report for 1922. (Apply to Levin J. Houston, Jr., City Manager.)

**Newark, N. J.**—Annual Report of the Auditor of Accounts for the year 1922. (Apply to John Howe, Director of Revenue and Finance.)

**Philadelphia, Pa.**—Port of Philadelphia Airgram. Publicity for the Port issued by the Department of Wharves, Docks and Ferries. (Apply to George F. Sproule, Director of the Department.)

**Portland, Maine.**—Tenth Annual Report of the Park Commission, for 1922. (Apply to Frank C. Goodrich, Superintendent.)

**Portland, Ore.**—Sixth Annual Report of the Municipal Paving Plant Division of the Department of Public Works, for fiscal year ended November 30, 1922. (Apply to R. S. Dulin, Superintendent of Municipal Paving Plant.)

**Richmond, Va.**—Annual Report of Director of Public Works, for 1922. (Apply to Allen J. Saville, Director, Department of Public Works.)

**Shawinigan Falls, Quebec.**—A financial report published July, 1923. (Apply to J. Henri Valiquette, City Manager.)

**South Bend, Ind.**—Annual Report of the Heads of Departments, for 1922. (Apply to Eli F. Seebirt, Mayor.)



## Re-Constructing a Gravel Boulevard with Kyrock

Fall Creek Boulevard, Indianapolis, is subject to exceptionally heavy traffic. In spite of repeated surface treatments, the roadway was rough and unpleasant to travel a great part of the year.

Excessive maintenance led the city to surface the drive with Kentucky Rock Asphalt. The old gravel roadway was scarified and shaped. Two inches of compacted lime stone was laid as an anchorage for the rock asphalt surface. The Kentucky Rock Asphalt was laid cold and, after rolling, gave a smooth sheet asphalt surface.

Many miles of old highways and streets may be salvaged and converted into high type, long life pavements, by using Kyrock. When the old roadway can be

shaped and used as a base, it often means a saving of fifty per cent over new construction. Such a foundation has the advantage of being thoroughly compacted and tested.

Kyrock comes ready to lay cold on any base adequate to carry the traffic. No binder course, no hot mix plant, no asphalt experts are required. Kentucky Rock Asphalt, Kyrock brand, is always uniform, and is not susceptible to injury from storage or handling in the open. Kyrock insures uniformly successful pavements.

Our engineering department has prepared typical specifications for all standard types of construction and reconstruction. Write for booklet D-4.

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# Methods, Materials and Appliances

News for City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

## A New Rocker Lug Coupling for Fire Hose

A rocker lug coupling that will ride over obstructions like wheels and which cannot cut or snag the jacket when the hose is pulled off the apparatus at a fire, has recently been brought out by the Bi-Lateral Fire Hose Company, 9 South Clinton Avenue, Chicago, Ill. It is claimed that with these lugs, hose will load easier and the oblong lugs will not injure the hose jacket with which they come in contact when loaded on apparatus. This prevents the pulling off of several folds of hose at one time when laying a line for a fire. The old-style lugs were invariably catching on the street, curb, pavement, walks, steps, ladder rungs, or roof, but the new Bi-Lateral rocker lug coupling is claimed to glide smoothly over all obstructions without catching and jerking the firemen that are taking a stream of water into a building. There are no springs or other contraptions in this oblong lug to get out of order. It is claimed that it forms a better hold to loosen and tighten by hand and will not injure the hand of the fireman.

Another advantage of the new rocker lug coupling is that spanners are not needed. Any



A COUPLING THAT DOES NOT CATCH ON LADDERS AND CURBS

piece of iron with a hook on it makes a spanner. However, in most cases these couplings can be tightened and loosened by hand and will not leak when the pressure is on.

## Changes in Cast Iron Pipe Organization

The United States Cast Iron Pipe & Foundry Company, Burlington, N. J., has announced that D. B. Stokes, formerly Western Sales Manager, is to be General Sales Manager, with offices in the Morris Building, Philadelphia, Pa.

W. G. Savage, formerly Eastern Sales Manager, is to be Western Sales Manager, with offices in the Peoples Gas Building, Chicago, Ill.

## Municipal Plant Enlarges Boiler House

The city of Decatur, Ind., has purchased two 398-horse-power Babcock & Wilcox boilers and two Westinghouse underfed stokers. The stokers have high coal hoppers, steam-operated dumping mechanisms and non-clinking side wall tuyères. Forced air draft is supplied by a Buffalo Forge fan, driven by a Westinghouse steam turbine. The turbine is connected to the fan by a Thomas flexible coupling, and a Wachs vertical steam engine operates the stokers. Crushed West Virginia coal is used.

## Surveying Water Resources for Okmulgee, Okla.

Okmulgee, Okla., through its city officials and Chamber of Commerce, has authorized the Burns & McDonnell Engineering Company, Interstate Building, Kansas City, Mo., to make a comprehensive survey and investigation of suitable sources of water-supply: one, with a storage reservoir on Deep Fork by building a 600-foot dam, 70 feet high, to impound 25,000 acres of water; another, the Grand River water, which will require a 40-mile pipe line; and also a source from the Illinois River, 50 miles away. These investigations began early in June and are made necessary because oil wells and salt water have been damaging the present supply, making a new supply necessary. This project will probably involve the expenditure of from two to three million dollars, and it is expected that the engineering plans and data will be ready for a bond election by September 1. T. J. Embree is City Engineer and Water Commissioner.



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Solvay Calcium Chloride owing to its lack of objectionable features such as odor, tracking, discolorization, etc., is particularly adapted for use on roads where there is considerable pedestrian traffic.

This clean chemical salt is the ideal dust layer, surface binder and weed killer. It will not stain clothing; neither will it affect rubber or the varnish of the automobiles or wagons using the road.

Fifty convenient distributing points permit prompt delivery with minimum transportation charges.

*The new Solvay Road Booklet will be sent free on request.*

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## A New Type of Street Sign

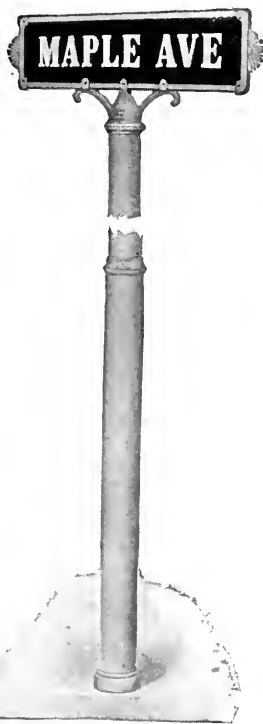
The question of durability is one of prime importance when a city is considering the purchase of street signs. The Century Sign Company, 100 Colonial Road, Boston, Mass., claims that its signs are built for permanence and in such a way as to appear well as time goes on and to be ornamental at all times. The sign itself is made of a composition of asphalt, asbestos and cement, hardened under great pressure. Tests made with acids prove that this sign will undoubtedly last indefinitely under any kind of weather conditions.

The metal mountings for the signs are made of pure aluminum with enough alloy to insure toughness and continued lightness of color. The letters are oval-faced and can be easily distinguished at night. They are well-adapted in style and design to fit any street or highway requirements and for directory signs, guideboards, and town boundary signs, and for any municipal requirement.

The posts are 8-foot exposed, with an allowance sufficient for setting firmly in concrete. Some posts are covered with aluminum sheet metal, which carries out the intention of the company to supply a sign that will last practically indefinitely with almost no charge for maintenance after the sign has been erected. When the posts are furnished without the aluminum covering they may be finished in enamel.

## Rood Joins Pittsburgh Testing Laboratories

The appointment of F. H. Rood as engineer of tests with headquarters at Pittsburgh, Pa., has been announced by the Pittsburgh Testing Laboratories. Mr. Rood is a civil engineering graduate of Syracuse University, and for many years was engineer of tests for the New York State Highway Commission and for two years a research engineer with the United States Bureau of Public Roads. Having been a member of the Pittsburgh Testing Laboratories organization once before, and having left it to further his training in special investigation work, he returns to strengthen this department.



A NEW PERMANENT STREET SIGN

## Painting Concrete Swimming Pools

The question of keeping concrete swimming pools in good condition during the summer is prominent in the minds of many athletic managers and municipal directors. The following statement, prepared by an expert and appearing in the "Oval," the house organ of the paint and varnish lines, E. I. Du Pont de Nemours & Co., Wilmington, Del., gives some interesting data on this subject:

"The success of a job of this kind depends more on the correct application of the paint than on the paint itself. One of the essentials is—plenty of time to permit the different coats to dry properly and the final coat to dry hard.

"First, the surface should be thoroughly cleaned. Grease should be removed by washing with gasoline, and dirt by washing with soap and water. The surface must be thoroughly dry before the first coat is applied, in order to permit the proper penetration of the paint.

"The first coat should be white enamel undercoat, thinned with elastic wall primer if the surface is of a porous nature, and with turpentine if the surface is hard and non-porous. It is essential to get good adhesion in the first coat.

"The second coat of white enamel undercoat should be applied as found in the container.

"If the surface is rough, a third and fourth coat of white enamel undercoat is advisable. The coating, when completed, must be continuous, so that there are no breaks in the film whatever, which would permit water to get back into the concrete and later force the paint away.

"The job to be finished should be given two coats of bathtub and refrigerator enamel.

"If the different coats are given sufficient time to dry, the procedure as outlined will produce as satisfactory a coating as anything that can be offered for painting concrete surfaces which come in contact with water.

"The three prime essentials are:

1. Dry surface.
2. Plenty of time for the different coats to dry.
3. The finished job must be an impermeable, unbroken coat, so as not to permit water to get back into the concrete."

## New Road-Marking Machine

A road-marking machine which has the marking pad either on the outside of the frame as illustrated or in the center of the frame with a smoothing brush following the marker, has been placed on the market by the Hampden Supply Company, 45 Sharon Street, Springfield, Mass. Both of these machines are designed for smooth pavements. The same company also manufactures a sprayer for rough or uneven pavements.

The smooth pavement machine measures 20 x 16 inches and is made from 1¼-inch angle iron. It has a ¾-inch axle and is mounted on 10-inch malleable iron wheels with large clincher grip rubber tires. The flow of paint is easily controlled by hand lever and, once set for the desired quantity of feed, it will flow automatically at that speed until the paint is exhausted. The marking pad is furnished in



We have eight of your machines in use now and are getting a maximum of efficiency and service from them. We have tried out other makes of machines but have standardized on your machine and have used them for the past seven years for Police work.

One of the most notable achievements of the Harley-Davidson, is the remarkably low cost of up-keep, together with the high degree of service.

Very truly yours,

*M. J. DeBate*  
Motor Sergeant.

## Listen to Miami

AFTER using Harley-Davidsons for seven years, the Miami, Florida, Police Department ought to know what's what in police motorcycles. Over 1200 cities and towns, of all sizes, use Harley-Davidsons for police service. Quick pursuit of law breakers, speeders

and reckless drivers is only one use. Many cities find that one motorcycle-mounted officer can do the work of several unmounted men.

Durable, dependable, speedy, economical—these are the big reasons why the Harley-Davidson leads in the police field. Its freedom from repairs and its low upkeep cost will amaze you (50 miles for a dollar—gas, oil, tires and all—is the Harley-Davidson's average).

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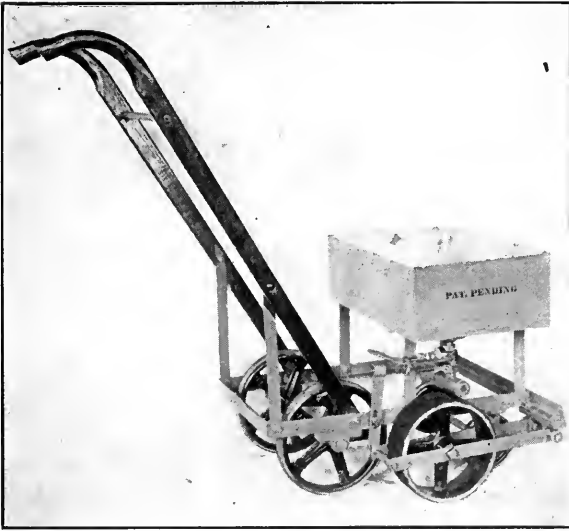
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# Harley-Davidson

## The Motorcycle



**A MACHINE FOR MARKING TRAFFIC LINES AND ZONES ON STREETS**

any width desired and is usually made to mark 4-inch lines. The machine is carefully set up with the four wheels carefully aligned so that the machine will naturally follow a straight line while being pushed. It will mark as fast as a man can walk.

### **A Combined Scarifier, Grader and 10-Ton Roller**

The Gray Giant Combination, which consists of a heavy-duty power unit, a scarifier, a standard grader unit, and an 8-ton roller is made by the Gray Tractor Company, Inc., of Minneapolis, Minn. This machine operates on the principal that good maintenance, regardless of the kind of material, involves three steps which must be thoroughly accomplished: first, the reduction of all material to a workable condition for a depth of several inches; second, the further breaking up of material to give uniformity, then grading it into place in the same operation, leaving the material evenly distributed and the road or street reshaped; third, rolling the road or street to compress the bed and harden the surface, that it may withstand the action of traffic and weather.

It is believed that the maintaining of roads with this machine will not have to be repeated as often as scraping or dragging, as two steps are added to the usual process, namely, scarifying and rolling.

The speed with which the machine completes its work is only a relative matter. Much depends upon the character and condition of the street or road itself. In many cases the original scarifying and the grading can be completed in the same trip, leaving only the rolling to follow. However, where each step is taken separately, the work proceeds at an average rate of three-quarters of a mile of finished road or street per day.

One operator handles the tractor, the scarifier, and the roller. The grader unit, which is a standard unit with a short blade, is operated by a second man. It is possible to operate this machine between street car tracks, which greatly increases its field of service.

### **New Water-Supply for Tampa, Fla.**

Tampa, Fla., will soon be supplied with filtered water from the Hillsborough River. After a study of the various available sources of supply, Nicholas S. Hill, Jr., consulting engineer, New York City, has determined upon the Hillsborough River project as the best solution of Tampa's problem in securing an adequate supply of pure, soft water. The water in the Hillsborough River is subject to some pollution, is at times hard and at other times highly colored. The proposed water-treatment plant will include softening, filtration and decolorization processes.

The new plant will be built for a daily consumption of 15,000,000 gallons, which will provide for the probable requirements of the city until 1935. Buildings, pumping-plant and purification works will be so constructed that additional units may be added from time to time as the growth in the demand of the city requires.



**SINGLE MACHINE WHICH SCARIFIES, GRADES AND ROLLS DIRT ROADS**



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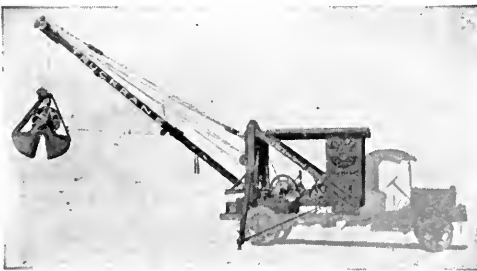
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Vol. XXIX  
No. 3

SEPTEMBER  
1923

# The American City Magazine

443 Fourth Ave.  
NEW YORK

50 Cents  
\$4 a Year

## A Former Mayor Becomes President

THAT election as Mayor of one's home town may be a stepping stone to the highest office in the gift of the American people, is again exemplified in the case of President Coolidge. In fact, Calvin Coolidge began his political career not as Mayor, but as Councilman, of Northampton, Mass., which position he occupied in 1899. Subsequently serving as City Solicitor (1900-01) and Clerk of Courts (1904), Mr. Coolidge became Mayor of Northampton for the years 1910-11. This service was followed by his election as State Senator (1912-15), Lieutenant Governor (1916-18), Governor of Massachusetts (1919-20) and Vice-President of the United States (for the term beginning March 4, 1921).

Other former Mayors who have become President of the United States since the Civil War are Grover Cleveland, who was elected Mayor of Buffalo in 1881 and became Governor of New York the following year; and Andrew Johnson, who served as Mayor of Raleigh, N. C., for three terms, beginning in 1830, after having been twice elected Alderman of that city.

A notable example of efficient municipal service leading to political preferment is that of Theodore Roosevelt, whose work as President of the Police Board of New York City (in 1895-97) brought him into both local and national prominence, and was

rapidly followed by his appointment as Assistant Secretary of the Navy and his election as Governor of New York and Vice-President of the United States.

Other Chief Executives since the Civil War who have occupied city or state offices prior to elevation to the Presidency include: Warren G. Harding, State Senator (1900-04) and Lieutenant Governor of Ohio (1904-06); Woodrow Wilson, Governor of New Jersey (1911-13); William Howard Taft, Judge of the Superior Court of Cincinnati (1887-



HE WAS MAYOR COOLIDGE, OF NORTHAMPTON, WHEN THIS PHOTOGRAPH WAS TAKEN

90) and Dean of the Law Department of the University of Cincinnati (1896-1900); William McKinley, Governor of Ohio (1892-96); James A. Garfield, member Ohio State Senate (1859-61); and Rutherford B. Hayes, City Solicitor of Cincinnati (1858-61) and Governor of Ohio (1867-70 and 1875-76).



# The Burning Shame of America

A National and Local Disgrace Which Everyone Can Help Remove

**F**IFTEEN thousand lives and property valued at more than \$521,000,000 were destroyed last year by fire. The fact that the American people in recent years have been permitting the fire demon to consume some forty lives a day and about half a billion dollars' worth of property annually, is a matter, perhaps, of more or less common knowledge. But unless this common knowledge shall become uncommon concern, the losses are sure to continue to rise—as the sparks fly upward.

For these reasons the National Fire Protection Association is performing a real public service in giving special emphasis this year to the educational possibilities of Fire Prevention Week. Through the courtesy of the Association, THE AMERICAN CITY is privileged to publish in the present issue what is probably the most complete outline ever compiled of the activities and methods by which the importance of adequate fire prevention and protection can be impressed on a community. This issue will reach our readers long enough in advance of the Fire Prevention Week—October 7-13—to make possible the adaptation of many of these suggestions to local needs and conditions.

Obviously no one community can act on all of the sixty-two suggestions which will be found in Mr. Bugbee's compilation on pages 276 to 282; but every municipal official, civic organization member, newspaper editor and public-spirited citizen will find in the list some suggestions of ways in which he can help to remove the "burning shame" of America. Special attention is

called to the paragraphs headed "Clean-up Activities," "Fire Drills," "Inspections" and "Ordinances," as offering ideas which no community is too small to adopt to its great advantage. The paragraphs in Mr. Bugbee's compilation are necessarily brief; but the National Fire Protection Association (40 Central Street, Boston, Mass.) stands ready to furnish further details and forms on application.

In addition to the local observances which it is hoped will take place in every city, town and village in the land, plans are being made this year by the Fire Prevention Week Committee of the National Fire Protection Association for the most important event in the entire history of fire prevention. This will take the form of the first National Fire Prevention Exposition, to be held in the Seventy-First Regiment Armory, New York, the week of October 8, with which will be associated an International Fire Prevention Congress. The advance announcement

of the Exposition and Congress says, in part:

"This joint activity is based upon the fact that the general public and the architects, contractors, manufacturers, bankers, credit men, municipal officials and other groups must be drawn together through some means that really will visualize to them the imminence of fire hazard, the terrible price which it exacts in life and property, and the simple means by which it may be obviated."

The late President Harding wrote to the National Fire Protection Association on June 7, "I earnestly hope that the continuing effort to bring this situation to the public attention may produce the most happy results." May this wish come true!



THIS STRIKING POSTER, MEASURING 12x16 INS., AND PRINTED IN RED AND BLACK, IS OBTAINABLE FROM THE NATIONAL FIRE PROTECTION ASSOCIATION

# Enlarging Ideals in Public Recreation

*A Parallel That Isn't Deadly*

**By James Edward Rogers**

Director of Training, Community Service

FROM

TO

1 \_\_\_\_\_ 1

From summer playgrounds and private support—

To the conception of a year-'round recreation system supported largely from municipal funds.

2 \_\_\_\_\_ 2

From the restricted idea of play and playgrounds for children—

To the idea of indoor and outdoor community centers to be used by every one of all ages.

3 \_\_\_\_\_ 3

From the notion of play supervision—

To the conception of play leadership.

4 \_\_\_\_\_ 4

From the stress put on the need for apparatus alone—

To the new emphasis on trained leaders to make the apparatus most useful.

5 \_\_\_\_\_ 5

From the narrow field of play—

To the larger group of spare time activities involved in the term 'community recreation.'

6 \_\_\_\_\_ 6

From calisthenics and drills—

To athletics, social recreation, community music, community drama and neighborhood organization.

7 \_\_\_\_\_ 7

From the old fashioned coach—

To the worker who trains leaders in community recreation.

8 \_\_\_\_\_ 8

From the system that trains for picked teams, elevens, fives and fives—

To the present emphasis upon mass and general participation.

9 \_\_\_\_\_ 9

From the tendency to let the paid executive do all the work—

To the idea of securing and training volunteers who shall be organized by the paid executive and through whom the executive multiplies his influence and accomplishments.

10 \_\_\_\_\_ 10

From the idea of confining the program within four walls or a fence—

To that of service throughout the neighborhood and community.

# Storage Yards of the Detroit Water Department

By C. P. McGrath

Superintendent of Yards, Department of Water-Supply, Detroit, Mich.

THE Department of Water Supply of the city of Detroit owns and operates four storage yards, which are located at strategic points in the city where railroad service is available. All pipe, valves and specials, sand, cement, brick, lead, gravel and other materials necessary for construction and maintenance of water-mains are stored and delivered from these yards. Because of the rapid growth of the city and the vast amount of water-mains required to serve the public, three of these yards, known respectively as the Western, the Eastern and the Northern Yard, have been opened during the last five years, from which construction crews are more efficiently served on account of the greatly reduced hauling distance.

## The Central Yard

The yard at Erskine and Orleans Streets, known as the Central Yard, was opened in 1855, and from here the majority of activities are directed. The layout is such that all materials can be unloaded from the cars, stored, and loaded onto trucks for delivery in the easiest and most systematic manner possible. It is the particular aim of the yard foreman to keep the place clean and shipshape at all times, and accumulated scrap is sold at different intervals. The double-track railroad siding which runs through the yard is equipped with a 125-ton scale and is laid on a 12-inch bed of stone ballast. Parallel to the track is a concrete roadway upon which the trucks operate. A 15-ton Browning crane is used to unload and load pipe, valves and other heavy castings, coal, sand and gravel. A single-line  $\frac{3}{4}$ -yard clam-shell is used in connection with the crane. The pipe is placed upon solid concrete runways, to which 8 x 8-inch timber is bolted. These runways are built at right angles to the track, with the concrete roadway between. The heavier valves and castings are unloaded onto a concrete platform alongside the track. The buildings in the yard consist of a two-story

office building, a three-story meter maintenance and repair building, a stock-room, carpenter shop, blacksmith shop, tapping room, barn, heating plant and garage. The layout is such that the cars can get to their respective places, load, and get away without any congestion. The personnel of this yard consists of from 225 to 250 employees.

Deliveries to construction crews receive the closest attention possible. Under the direction of the traffic man, pipe is delivered and strung on the job before the crew arrives. Orders for material are telephoned to the yard delivery clerk in the afternoon and delivered the following day. The orders are written on consecutively numbered triplicate delivery tickets, Nos. 1 and 2 going out with the truck driver. No 1 is signed by the foreman of the construction crew and returned to the delivery clerk, No. 2 is retained by the foreman, and No 3 is filed by the delivery clerk. The labor and cartage is affixed to No. 1 and passed on to the cost clerk for records and prices. It is then checked by the auditor and posted to the construction ledger by the yard bookkeeper. Each and every ticket must be absolutely accounted for before being filed. During the last year 5,559 pieces, or 394.20 tons, of small castings from 4 to 24 inches, and 198 pieces, or 140.12 tons, of large castings from 30 inches to 48 inches, were issued from this yard. There were also issued 8,291 pigs of lead and 1,336 gate-valves from 2 inches to 48 inches. During the last fiscal year, there were 540,000 feet of pipe laid, 20 per cent of which was delivered from this yard.

## Handling Leaks and Emergency Work

Complaints of a leak or break in the main are received by the delivery clerk, who immediately dispatches a leak investigator to the location to determine the seriousness. He reports back, and if the work is to be done by the department, a leak crew is sent to make the necessary repairs. The leak crews number six, each

being composed of a foreman, a driver and laborers. Each crew is provided with a Ford 1-ton truck fully equipped with tools. If a break on a 24-inch or larger main has occurred, the investigator telephones in and the gate-closer is sent to make the necessary shut-off. Two such gate-closers are maintained at the yard. These were developed in conjunction with the Engineering Department of the Packard Motor Car Company. A standard 2-ton Packard chassis has a vertical drive-shaft for operating valves at the left of the driver's seat, which may be raised and lowered by a hand wheel. The lower end of this vertical shaft is equipped with a square head. All gate-valves 24 inches or larger in Detroit have an extension with a square head, which is about 3 inches below the surface of the road. An assortment of double-end socket extensions of various lengths, gate-books, intersection maps, sectional map, lanterns and pipe sticks are carried in the machine.

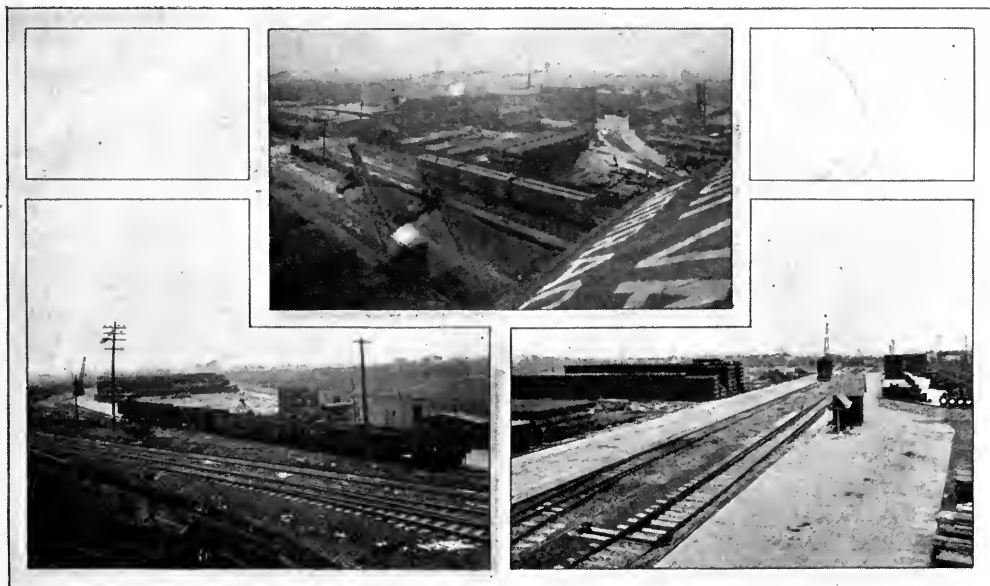
The operation of the valve-closer consists of maneuvering the truck over the road-box, which is easily done with the aid of a pointer, and inserting one of these socket wrenches over the extension stem. The driver-shaft is then lowered into the other end of the socket, and the mechanism

is started. Detroit's 48-inch valves require about 220 turns. This formerly took four men from one to one and one-half hours to operate. The new machine is operated at an average speed of about 25 turns per minute. The shaft can be reversed for opening valves. It is equipped with a counter which registers the number of turns and has a set-back to zero. The body of the machine is built somewhat on the order of a patrol. Near the operating shaft is mounted a table showing the number of turns for the various sizes and makes of valves used in Detroit.

For night work in case of emergency or a serious break, a portable lighting plant mounted on a trailer is used. The plant consists of a vertical gasoline engine directly connected to a Delco 3,000-watt generating unit. This unit supplies current to twelve 250-watt lamps mounted on iron standards, and may be placed, by the use of extension cords, so as to flood the job with light. Lanterns and carbide lamps were formerly depended on for illumination.

Another trailer fully equipped with tools for an emergency is kept at the yard.

The yard has two emergency crews on duty from 3:00 P. M. to 7:00 A. M. available for immediate service, and during the



STORAGE YARDS OF THE DETROIT DEPARTMENT OF WATER SUPPLY

Top.—Central yard, showing arrangement of spur tracks and storage facilities. Left.—Eastern storage yard with stock of pipe and concrete roadway. Right.—Western storage yard, showing method of stacking pipe and crane on track

winter months one of the gate-closers is stationed at an emergency station with foreman and crews from 3:00 P. M. to 7:00 A. M.

### The Tapping Department

The tapping department operates from the Central Yard. The equipment includes nine Mueller machines for making taps up to 1-inch in size, and one Mueller and two A. P. Smith machines for making cuts up to 12 inches. During the month of May, 1923, this department made 2,121 new connections to the mains. In order to secure a tap, the plumber must first secure a permit from the Department of Public Works to open the street. He presents this to the Permit Department of the Water Supply and upon payment of the required fee is issued a permit for a tap. He leaves notice as to when he wishes the tap made. Morning orders are made in the afternoon, and those received in the afternoon are made the following morning. The permit department notifies the yard permit clerk by telephone of the orders received, giving him the size of the tap, the location, the permit number, the lot number and the plumber's name. These orders are then written on job cards and given to the delivery clerk, who makes out the routes for the six tappers.

Each tapper has a helper and covers his route with a Ford roadster from which the deck has been removed and a fully equipped tool-box substituted. All jobs are inspected by the tapper and must be correct as to size of lead, depth of ditch, and wiping of joints. The tapper notes on his job card the nature of the work performed and whether or not the job passed inspection. If the job does not pass, the reason is noted and a charge of \$1.00 is made against the plumber. If it passes, the location of the stop-box is noted. The cards are returned, checked to see that none are missing, and given to the cost clerk for service-cock pricing. The cards then go to the yard permit clerk, who computes the labor and cartage for his records and also makes a list of all stop-box locations. These locations are sent to the Permit Department, where a record of each and every stop-box location is kept. The cards are then filed.

### The Water Department Garage

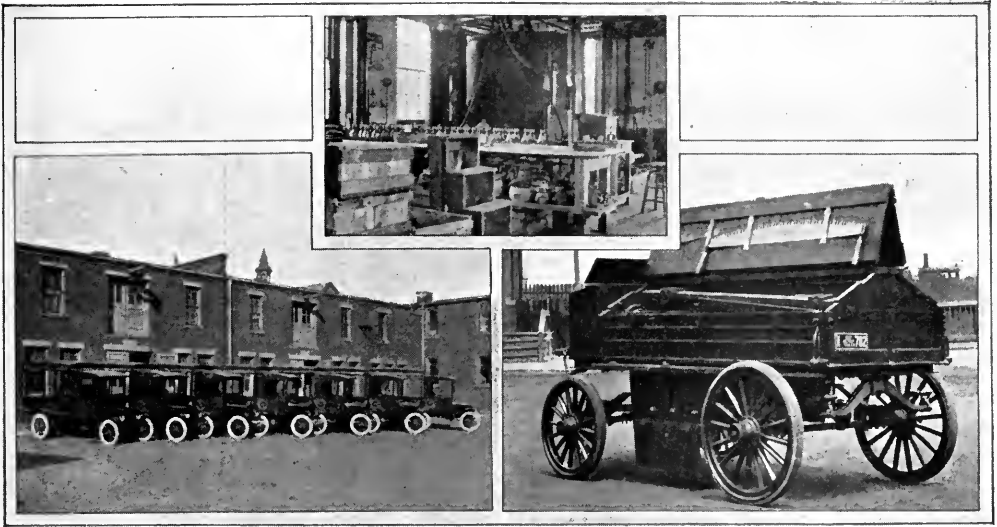
In the Department's garage, located in the Central Yard, 78 automobiles are repaired and maintained. Of these, 25 are passenger, 30 commercial and light delivery cars, and 23 are trucks with a capacity of from 1 to 6 tons. A 10,500-gallon gasoline tank located just outside the garage and adjacent to the railroad track makes it possible to obtain gasoline by car-load lots, thereby saving from 3 to 5 cents per gallon. The Department's cars travel on an average 600,000 miles annually and consume approximately 72,000 gallons of gasoline and 5,000 gallons of motor oil. The garage repair shop is equipped with a 3-ton overhead traveling crane, also with a complete battery repair department—two Tunger rectifiers and one motor generator for charging. The garage also takes care of all radiator and tire repairing, the tire room being equipped with an electric tube plate and both 4-inch and 5-inch cavity molds, with which casings from 3 to 5 inches are repaired. The garage is in charge of a foreman, assisted by eight mechanics. A night force is maintained to wash, dope, and oil and grease the cars. This crew may also be used in case of emergency work. All cars are checked in and out by a gate attendant and absolutely must be accounted for at night, thus eliminating joy-riding with city-owned vehicles.

At the Central Yard a carpenter shop and a blacksmith shop are maintained and equipped to make small wood parts and repairs to both wood and metal work. The carpenter shop is equipped with a combination wood-working machine, consisting of a band-saw, a rip-saw, and an 18-inch planer and jointer. The shop also has an 18-foot wood-turning lathe which takes care of much work previously done by jobbers, such as pipe sticks, wooden plugs, jack handles, etc. The blacksmith shop is equipped with a 200-pound Bradley belt-driven power hammer. Four carpenters, two blacksmiths and two helpers make up the force in these shops.

As the larger valves and castings can sometimes be more efficiently handled by teams, a barn and seven horses are maintained and kept at the Central Yard.

### The Meter Shop

The meter shop, under the supervision of



**EQUIPMENT BELONGING TO THE DEPARTMENT OF WATER SUPPLY, DETROIT, MICHIGAN**  
 Top.—Meter testing shop. Left.—Motor trucks for leak gangs. Right.—Emergency tool box on trailer

the yard superintendent, with a foreman in charge, is located in the Central Yard, where the records are kept and the meters are repaired and tested.

When the meters are received from the factory, they are checked by the receiving clerk, who verifies the quantity and also checks the numbers on each meter before placing it in stock. A card is then made out for each meter, giving the make, number, size of meter and date received. This card becomes the meter record, and will contain its whole history from its entrance into stock until it ends in the scrap pile. It shows the test record, where it was first installed, and where it is at the present time, giving the street and number, its location on the premises, the date when it was removed for repairs or any other reason, the cause of the trouble, and the repairs necessary before it again went into commission. This card is placed in the files, where it can be referred to at a moment's notice. The meters are then entered on perpetual inventory cards, which are prepared for each size, style and make of meter. A meter when set is deducted from the total of that size and make in stock and added to the total in service. Thus, by consulting the stock cards, one can tell at a glance the quantity of any size or make of meter in stock and the number in service.

The Department has in stock or service meters ranging from  $\frac{3}{8}$ -inch to 24-inch in

size, and each meter is subjected to a careful and positive test as to its accuracy before it is sent into service. All meters are tested from full flow down to  $\frac{1}{8}$ -inch flow. Meters are passed that show a variance of not more than 3 per cent either way.

When the plumber is ready for the meter to be set, he notifies the Permit Bureau, fixing the date when the meter can be installed. A card is filled out with the street and lot number and size of meter and sent to the meter shop, where it is filed under date of setting and turned over to the Traffic Bureau. This bureau has a mounted map showing the entire city and suburbs. On this map the order is indicated at the proper location, and it is from this map that the daily routes of the meter setters are made. The meter setter receives a job card for each meter. This card contains all the information necessary, the name of the street, the house and lot number, the size of the meter and its location on the premises, whether it is to be set in the basement, under a sink, or in a well. If the meter setter finds the rules and regulations of the Department have been complied with, he sets the meter and fills out his card with the date of setting and returns it to the meter office, where necessary entries are made on the original card and filed for future reference. If, however, the meter setter finds that the rules have not been complied with, he returns the meter and job card to the

meter shop, and the plumber is notified of the irregularity in the preparation for setting and must rectify it at once.

When a meter fails to register, the meter reader fills out a job card, which the Traffic Bureau gives to the meter setter, who removes the meter and replaces it with another of equal capacity. The meter is brought in, put through the records, washed, and given to the meter repair man, who makes the necessary repairs. If the damage is found to be due to the negligence of the owner or occupant of the building, such as frost or the warping of the disc by hot water, he is billed for the material and labor, the amount of which is collected with his next water bill.

Detroit has over 160,000 meters in service. During the last year the meter department repaired 6,400 meters, tested 47,500 and set 7,000 on new property. On account of the large number of meters repaired, it is necessary to keep a large supply of parts in stock. These parts are given to the repair man by the storeskeeper, and a record is kept of each part issued. The perpetual inventory card system is used for keeping a record of these parts, and very satisfactory results are obtained.

### The Western Yard

The Western Yard, so called because of its location in the western section, is 7 miles from the Central Yard and has an area of nearly 7 acres. It is equipped with a siding capable of handling 22 cars. The track is equipped with a 125-ton scale and constructed of 80-pound rails laid on a 12-inch bed of stone ballast. The yard contains a concrete platform for storing valves and special castings, a 22-ton Orton-Steinbrenner locomotive crane, a building capable of storing 20 car-loads of cement, and a combination office and stock-room of 4,500 square feet floor space. A complete supply of material, tools and equipment is kept on hand to serve construction and maintenance crews in the surrounding territory. During the last fiscal year 31 per cent of the pipe laid was delivered from this yard. Because of its location, the average haul to the various jobs was reduced 4 miles. Recently a branch of the meter department was established at this yard, and one crew is engaged in setting meters in the vicinity.

### The Eastern Yard

The Eastern Yard, 5 miles distant from the Central Yard, was opened in 1920. It comprises 6 acres. This yard is also equipped with a 20-ton Orton-Steinbrenner locomotive crane and has a siding of 20 cars capacity. It has a combination office and stock-room, similar to that of the Western Yard, from which construction and maintenance crews are served. This yard delivered during the last year 49 per cent of the pipe laid, the average haul, on account of the yard's location, being reduced by 3 miles.

### The Northern Yard

The Northern Yard, 6 miles north of the Central Yard, comprises 6½ acres and is being developed at the present time.

All the yards operate on an 8-hour day basis. Of the employees, 30 are salaried and the rest are paid hourly rates. Each and every employee is required to punch a time card in the morning and out at night. Strictest attention is paid to tardiness, and absence from work without a good reason is not tolerated. A synchronized time system with a master clock in the office and auxiliaries and bells in the various buildings is used at the Central Yard, saving much confusion.

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## Fire Protection

Have you planned what you would do in case of fire? Do you know where the nearest fire alarm box is? Do you know how to send in an alarm?

Do you know all the means of escape from your building? Are they clear and usable?

Do you know if the fire doors will work automatically? Have you provided for prompt closing of all doors and windows in case of fire?

Do you know where the fire apparatus in your building is kept? Do you know how to use it?

Do you know where the nearest hydrants are and do you know how to get out the hose?

If you haven't thought of these things, now is the time to begin.

POSTERS OF THIS TYPE IN FACTORIES AND SCHOOLS MAY SAVE MANY LIVES WHEN THE CRISIS ARRIVES



# Neighborliness Between Utilities and Municipal Departments

Municipal Team-Work Promotes the Public Welfare

By Frank C. Jordan

Secretary, Indianapolis Water Company, Indianapolis, Ind.

IT is an accepted fact that cooperation between the water department and other departments of the city government is essential to the well-being of the city. Municipal team-work is of vital importance in the development of a city. The first requisite in building up a proper spirit of cooperation and the bringing about of proper team-work is neighborliness. The smart business man, utility or otherwise, avoids deceiving himself. The same thing is true in the utility business. The whole community you serve is made up of your neighbors. Your neighbors know, sooner or later, just about all there is to know of your affairs. This being true, the thoughtful utility operator is the operator who tells the world what he is doing, and why, and how, and when, and where.

The utility operator who works with his city officials as one neighbor with another, never has such a problem. If he is acquainted with these city officials, as one neighbor knows another, it follows that the officials will know his problems of operations and will sympathize with him. It is only when we keep away from the officials and behave as perfect strangers to them that difficulties arise.

There may be some who will say that it is well to keep a respectable distance between city or state governmental officials and the utilities. The trouble with this theory is that this distance leaves space that may very quickly and readily become filled with misunderstandings, mistrust and

even enmity between a city and utilities.

## Utility Problems Are Community Problems

It all simmers down to this: The problems of the utility, which are service and rates, are community problems. The utility cannot solve either one by itself. Neither can the community, through its city or state officials. Both problems are bigger than either the utility or the officials. They must be solved for the common good of both; therefore, the thing to do is to maintain

friendly and neighborly relations with each other. Such neighborliness tends towards municipal team-work.

In an attempt to bring about efficient municipal team-work in the city of Indianapolis, we became neighborly with the various city departments, and the results have been most gratifying. We held neighborly conferences with the Fire De-

### What Are "Public Relations"?

We hear a great deal about the popular latter-day mysterious and intangible thing called "public relations." We listen to, and read, long and expert papers on the subject, but down under the surface that we gloss over with phrases, is the undeniable fact that public relations, so called, consist of nothing more nor less than neighborliness. The operator who is a good neighbor to all his community, who treats his neighbors fairly, serves them well, charges them properly and carries his share of the community load in all respects, never has one of these lately discovered public relations problems.

partment and these have resulted in a more efficient public fire service. In a neighborly way we invited the Fire Chiefs, Fire Captains and Lieutenants to visit our plant, and they accepted our invitation. They showed great interest in the operation of our pumping units, boiler-room, etc., and a great majority of them confessed that it was their first visit to any of our properties. When we returned their call, many of our men had to confess that it was the first time that they had had the opportunity of receiving first-hand information in regard to the trials and tribulations of a city fireman. This neighborliness has made their prob-

lems our problems, and our problems their problems. When the question of decreasing our fire loss came up for consideration, in one of our neighborly conferences, it was only natural that we should join hands in a fire prevention program, and the Indianapolis fire prevention campaign was the result of these neighborly talks.

During the first eighteen months of our fire prevention campaign we held neighborhood meetings in every section of the city. Through the instrumentality of moving pictures, addresses and contests, the value of fire prevention measures was impressed on the minds of the Indianapolis public. They are now showing an exceptionally fine spirit of cooperation as the result of these little meetings, when two or three hundred neighbors gathered in a fire engine house or public school building to plan for a cleaner and safer Indianapolis.

Recently our attention was largely centered on a clean-up and city beautification program and a campaign for the elimination of the wooden shingle roof, and we received most satisfactory support from the great majority of Indianapolis citizens. During 1922 the Building Commissioner issued approximately 4,000 reroofing permits, and at the present rate this number will be almost doubled during 1923. In this great campaign for a cleaner, safer and healthier Indianapolis, we have witnessed municipal team-work second to none in the history of our city.

### Examine Your Own Faults

History has shown that it is rather unwise for one neighbor to point out the defects in another neighbor's household. Bearing this fact in mind, we called in the National Board of Fire Underwriters to make a most careful study of the fire and water departments, and we then joined in a neighborly effort to eliminate those defects which were brought to our attention by the exceedingly efficient gentlemen from the National Board's office. A movement is now on foot to give Indianapolis a reclassification in its insurance rating, and our citizens will profit because of the municipal team-work in building up the public fire service.

We held some very pleasant conferences with the City Board of Health, and in a consideration of the physical conditions in

Indianapolis we discovered that many of our citizens were underprivileged in that they did not have the privilege of living in modern homes equipped with bath, toilet and other modern sanitary conveniences. In company with city officials, we visited several of these properties and found that many of these underprivileged citizens were very desirous of making their properties modern, but that their financial condition precluded such a transformation. The Board of Health gave consideration to the enactment of very stringent measures which would compel the installation of sanitary conveniences. A brief consideration of this proved that it would not be the neighborly thing to do unless the city was able to show that these conveniences could be installed without considerable financial embarrassment to these underprivileged citizens. After a few more neighborly conferences were held, a plan was formulated under which plumbing is being installed on the payment plan, and a sanitary program of vital importance to the health of Indianapolis is being carried through with practically no friction whatsoever.

The City Health Department is morally obligated to rid the city of disease-breeding places, and the Water Department must bear a share of the Health Board's obligation in this matter. It is therefore of vital importance that some financial arrangement be made under which every citizen may have the benefit of thoroughly sanitary quarters. The payment, or budget plan, is being utilized by quite a number of our citizens. We have found that an advertisement of the payment plan of plumbing installation is all that is necessary to bring people to the plumbing supply house, and in many cases they are able to take care of the financial arrangement without resorting to the payment plan. This budget plan is working very satisfactorily and is serving a great purpose.

### Further Cooperation

In one of our neighborly conferences with some of our patrons, some question was raised in reference to our rules and regulations. The friendly advice of the Public Service Commission was sought, and as the result of some further conferences a committee, consisting of bankers, manufacturers, lawyers, club women, water-

works men, college professors and other citizens, to a total of twenty-five, met, in a neighborly way, to formulate water-works rules which would be fair both to the utilities and to the rest of the public. This committee has held several meetings, and these rules are about ready for submission to the public service commissions throughout the country. The fairness of these rules is an indication of the public's desire to be fair when the utility presents its case in the right manner.

In our program of cooperating with the Board of Public Works in the upbuilding of our city, we have been called upon to make very large expenditures in water-main extensions, many of which are not paying investments but are of inestimable value to the Indianapolis citizens. In carrying out such a program, entailing large expenditures, it is necessary for the state and city authorities to pursue a broad-gaged policy.

In an attempt towards neighborly cooperation with the Park Board we have done a considerable amount of work in beautifying the grounds around our pump-stations, and we are looking forward to the day when every part of the water company's property will be a beauty-spot and will mold itself into the great plan of city beautification.

We have most friendly relations with the school children, and the publicity which they have given us is of tremendous value. Every pupil in the upper grades is required to write an essay on the public water-supply of our city. During the course of the year a great many of the classes visit our filtration system and pumping-stations, and

very little of interest escapes their notice. We recently furnished the school children with pamphlets descriptive of our property, which are being utilized as the foundation for thousands of essay. A great many of our new patrons volunteer the information that school boys or girls in their homes have insisted upon having sanitary conveniences in the home. In this and other ways it has been demonstrated to us that the water company can have no more valuable asset than the good-will of the school children of the city.

Our city is blessed with an exceptionally large number of civic and commercial organizations, the records in the local Chamber of Commerce showing a total of more than one hundred groups of people organized for the purpose of upbuilding the city. One of our many trips of inspection included representatives from 92 of these organizations. No publicity expenditure made by our company has been productive of better feeling than this inspection trip, when men and women from every section of Indianapolis spent a full afternoon and evening in an inspection of our properties and a consideration of the future development of the public water-supply.

It has been gratifying to find that our attempts at neighborliness have been reciprocated in a greater degree than we had any reason to expect. Almost without exception, our citizens have assumed a most neighborly attitude, and there is being carried forward a municipal team-work which is resulting in great good to our city.

ACKNOWLEDGMENT.—From a paper presented before the Detroit Convention of the American Water Works Association.

## Granite Paving for Heavy Traffic

ACCORDING to David A. Hartwell, Commissioner of Public Works and City Engineer, Fitchburg, Mass., in the *Journal of the Boston Society of Civil Engineers*, Volume X, No. 5, all granite block paving in Fitchburg until within about 8 years was laid on a granite base with sand, pebble and pitch or cement grout filler for joints. Twenty-five years ago such paving gave a good degree of satisfaction. It was not expensive and was a great improvement over previous conditions. At present all granite blocks are laid on a

6-inch cement concrete base and the joints filled with cement grout. In 1921, new work of this type, amounting to 7,855 square yards, was laid in one street at a cost of \$5.39 a yard. The itemized cost per square yard was as follows: excavation and sub-grade, 72 cents; cement concrete base, \$1.16; granite blocks, \$2.34; laying, ramming and grouting, 96 cents; miscellaneous, 21 cents. The blocks averaged 28.7 per yard. The labor cost was \$1.70 a square yard, or 31½ per cent of the total cost of the granite paving.

# Asphaltic Concrete or "Black Base" for Road Foundations

By Frederick A. Reimer

Civil Engineer, Newark, N. J.

A STUDY of Western methods of road construction reveals the fact that during the last ten years great strides have been made in road foundation work, particularly through the extensive use of the foundation familiarly known as "black base" or asphaltic concrete. Upwards of 15,000,000 square yards has already been laid and proved successful. East of the Mississippi, foundations of this type have been used in only a few widely separated places.

Asphalt is used as the binding material in black base construction and broken stone, or gravel, is used as the aggregate. The ductility of this base prevents cracking and disintegrating from expansion or contraction caused by temperature changes. Its flexibility assures constant, uniform contact with the subgrade and gives to the pavement its maximum bearing and carrying capacity for the traffic load. If slight settlements develop in the subgrades, it does not leave the foundation unsupported. This non-rigid'ity makes it possible for the foundation to absorb shock impacts from vehicular units, as the base, being resilient, distributes the shock impact throughout the entire depth of the pavement and it is absorbed without danger to service or base.

Where a bituminous surface is used, black base construction assures a perfect

bond with the surface, and when completed, makes a dense, homogenous mass. This type of foundation also saves time in construction. It is not necessary to close the road to traffic for a long period, as the surface may be laid simultaneously with the base, and the road opened as soon as the material cools, a matter of only a few hours.

The injurious effects of moisture from capillarity on rigid foundations has always been a serious menace and difficult to eliminate. This difficulty is overcome by the use of the impervious black base, which is not subject to attack by moisture. Where replacements of subsurface utilities are necessary and the pavement must be cut, there is a distinct advantage in this type of foundation, as a bond is formed at once with the old base, thereby again forming a homogeneous mass, and the road may be opened to traffic at once.

It is claimed that the reduced cost of maintenance with this type of base is even greater than its other advantages. When slight depressions occur it is unnecessary to remove the entire base to repair it. The surface only is taken up, and sufficient new material added to the base to bring it up to its original grade, after which the surface may be relaid. It is only in extreme cases that it is necessary to remove both the surface and the base.

## Bitulithic Paving for Resurfacing

ABOUT 25 per cent of the yardage of all pavement in Cambridge, Mass., is Warrenite-Bitulithic. It seems well adapted to the requirements of traffic of many streets in the western part of the city, especially where enough of the old pavement remains to form a good base for a Bitulithic surface, according to Lewis M. Hastings, City Engineer, Cambridge, Mass., in the *Journal of the Boston Society of Civil Engineers*, Volume X, No. 5.

A good example of this is on Brattle

Street, where in 1919 and 1920 the old surface of tar macadam was scarified and broken up and the surface was then thoroughly rolled to the subgrade, on which was placed a 2-inch layer of Bitulithic at a total average cost of \$3.13 per square yard.

Magazine Street is a case where a heavy tar macadam pavement had become worn, rough and out of shape. There the old surface was regulated by trimming and filling to the subgrade, on which Bitulithic was placed for \$1.50 per square yard.

# The Economics of Sewage Disposal

*The science of life is the theory of limits—to know where courage ends and foolhardiness begins; where thrift degenerates into miserliness; where generosity changes to extravagance.*

**By H. Burdett Cleveland**

**Consulting Sanitary Engineer, New York City**

**A**RE we to-day applying the theory of limits intelligently and keeping hold of a proper perspective in this country in studies for stream pollution prevention and in the design of sewage disposal works? Are we giving in all cases the careful attention it merits to the relative value of a moderate treatment of sewage as compared to a very high degree of purification of sewage where no effect on health is involved and which often goes beyond the point of diminishing returns?

Where public health is directly affected, where water - supplies must be protected or bathing-beaches kept clean, the cost should never be balanced against a saving in human life. But there are many instances where these major considerations are not involved yet where highly efficient and highly expensive sewage disposal layouts are planned and constructed when the comparatively simple process of freeing the sewage from gross suspended matter to avoid or eliminate nuisance conditions is all that is needed.

Sanitary engineers have agreed, in principle, for many years that the burden of protecting water-supplies should be equitably and economically divided between the sewage disposal plant and the water filter. We have agreed in principle. What do we frequently do in practise?

Too often, as soon as the engineer is commissioned to apply the splendidly developed and standardized methods of sewage disposal to some particular problem, he begins to mull over the matter, develops cold feet as to what some other

engineer or some state authority would say, and thereafter loads down the municipality with everything in sight from soup strainers to final settling-tanks.

Or perhaps we are not content with the good old tested methods of sewage treatment which would provide works that beyond all doubt or peradventure would fulfill every need of the particular municipality that called in our consulting services, or at least would meet all needs until long after the amortization sheet was a memory only, and so we scratch our heads and try

to work out something new, something which at added cost will do much more than is necessary in that particular city.

There are locations and there are sets of controlling conditions and requirements that demand nearly all the tricks in the bag, adequate preliminary screens, grit chambers, settling-tanks, nitrifying beds or nitrifying

process, and final settling-tanks with rigid sterilization of the effluent. But why confuse the issue and apply the full sequence of processes at a point where only the removal of visual suspended matter is needed for the next quarter of a century?

As Harrison P. Eddy has recently pointed out, we cannot ignore the fact that elaborate sewage disposal plants must be properly operated or the whole investment and the whole benefit are lost. Proper operation of such plants costs a great deal of money, which is not so easy to get as are the funds for construction.

There have been and there still remain many problems in applying the art of sewage disposal in this country to special loca-

## Shall We Prevent Nuisance or Produce Spring Water from Sewage?

It is not good engineering to attempt to manufacture spring water out of dry weather flow sewage from a combined sewer system when during every hard storm most of the raw sewage must be discharged with no treatment whatever. It is not good engineering to assume the pose of the Pharisee and the High Priest, to magnify both problem and plant and thereby tend to delay the vast amount of first aid work of which our water-courses are sorely in need.

tions and to the work as a whole which clearly demand the closest study and perhaps a special demonstration of the applicability of known methods or even the development of new processes or improvements on present ones. It has been extremely fortunate for the art and science of sewage disposal that so many cities and so many state and national agencies have felt in the past that they could afford the cost of such experimentation. The status of stream sanitation and public water-supply protection owes its high position today to just such investigation—to the classic studies at Lawrence and other state and national experiment stations and to the pioneer work at many cities, notably Worcester, Columbus, Baltimore, Philadelphia, Brooklyn, Chicago, Cleveland and Milwaukee.

The underlying principles of sewage reductions have been well worked out for many years by able men. Effective combinations and variations of time-tested processes and, although rarely, an attacking of the problem from a new standpoint, will give a finer, more positive application of well-known principles and practise. Witness the notable example of activated sludge. The highest credit is due to the persistence and vision of T. Chalkley Hatton in carrying on at Milwaukee, Wis., the demonstration of how to make two kinds of work progress where only one took place before.

There is now and will be in the future adequate justification for experimentation in sewage disposal to consolidate the conclusive gains already made, to simplify and cheapen present effective methods, and to solve certain problems such as the economical disposal of sludge. But why load such work on the back of some poor, small, bewildered community that has not yet recovered from the Civil War or paved its front

streets by modern methods?

When sewage disposal projects are planned, the outline should be complete for both sanitary and economic reasons. It is axiomatic that every factor of future increased contribution of sewage and of future need for the most complete treatment should be considered. This does not mean, however, that the full number of units for maximum necessary capacity or all the component parts of works for a high ultimate degree of treatment should necessarily be built in the first instance.

In many cases the availability of sterilization methods, and in many others the effluent dilution factors, fully warrant a delay in the construction of portions of the final complete plant. In practically every case the discharge of raw sewage is unwarranted, is against proper sanitary and esthetic standards, and is usually and rightfully prohibited by public health authorities.

It is good engineering, however, to let the punishment fit the crime; to build now only what is needed now and let the saving in capital charges and operating costs furnish, where possible, the funds for final treatment works; to let the burden of extended experimentation and the testing of doubtful methods fall on state and national agencies and the larger cities throughout the country.

It is not good engineering to attempt to manufacture spring water out of dry weather flow sewage from a combined sewer system when during every hard storm most of the raw sewage must be discharged with no treatment whatever. It is not good engineering to assume the pose of the Pharisee and the High Priest, to magnify both problems and plant and thereby tend to delay the vast amount of first aid work of which our water-courses are sorely in need.

## High School Boys Work on Highways

THE muscle that was built playing football is now being used to lift bags of cement, and the energy that was repressed in the school-room is being given an adequate outlet in creating concrete and brick paving in Cadillac.

High school boys are employed this summer on street work. There are about a

score of lads on the paving gangs, and the city manager says they are the best workmen he ever has had. The spectacle of two husky youths with loaded wheelbarrows racing to the concrete mixer is a common one, as there is enough spirit of rivalry manifest to make the work a contest.

—*Michigan Roads and Pavements.*

# From Red Ink to Profits

Air Lift Plus Oil Engine Greatly Improves Finances of Galva, Ill., Water-Works

By John Oliphant

INVESTIGATION a year or so ago revealed that the city of Galva, Ill., was annually running into debt because of conditions at the water-works plant. The administration sought to find a means of remedying this trouble, with the result that the old steam plant, consisting of four boilers supplying steam at 100 pounds pressure to a steam-driven air compressor, was discarded. The compressor brought the water to the surface whence it was forced into the stand-pipe by means of an ordinary duplex steam pump. The coal delivered at the plant cost from \$5.50 to \$6 per ton.

The problem to be solved was the raising of the water from the well and delivering it to the stand-pipe, or direct to the mains under pressure, at a minimum cost. The stand-pipe is 97 feet high.

## \$300 Loss Becomes \$500 Profit

"The new water-works installation completed within the past year has turned an operating loss of \$300 to \$500 per month into a monthly profit of \$500 to \$600 in spite of the fact that a 15 per cent reduction in water-rates has been made to consumers and that the equipment is being paid for from the monthly earnings."

*Mayor Mellow, in the "Galva Daily News."*

## New Equipment Installed

In January, 1922, a 100-horse-power Fairbanks-Morse Type Y oil engine, direct-connected with a flexible coupling to a Sullivan Type WJ-3 angle compound compressor operating at 263 r.p.m., was installed. A 36-inch by 8-foot vertical steel air receiver and a 3-inch Fairbanks-Morse single-stage centrifugal pump were also installed. The new equipment further included a 12,000-gallon fuel oil storage tank, 8 feet in diameter by 31 feet 10 inches long, which assures an adequate fuel oil supply at all times. At the well were installed a Sullivan standard foot piece with 4½-inch discharge and a 2½-inch air-line; and a Sullivan standard well-head, flanged to a 15-inch casing, a 5-inch water discharge, and a 2½-inch air connection and regulating valve and umbrella deflector.

The water discharge line is 4½ inches in diameter, expanding to 5 inches. The

air-line, which is connected outside the water discharge, is 2½ inches in diameter. The air-lift discharges from the well into a surface reservoir, and the centrifugal pump is used as a booster to lift the water from the reservoir to the elevated tank or to discharge it into the main.

Cooling water for the compressor and engine are supplied by a closed system consisting of coils of 2-inch pipe laid in the bottom of the surface reservoir so that it is always submerged in cold water from

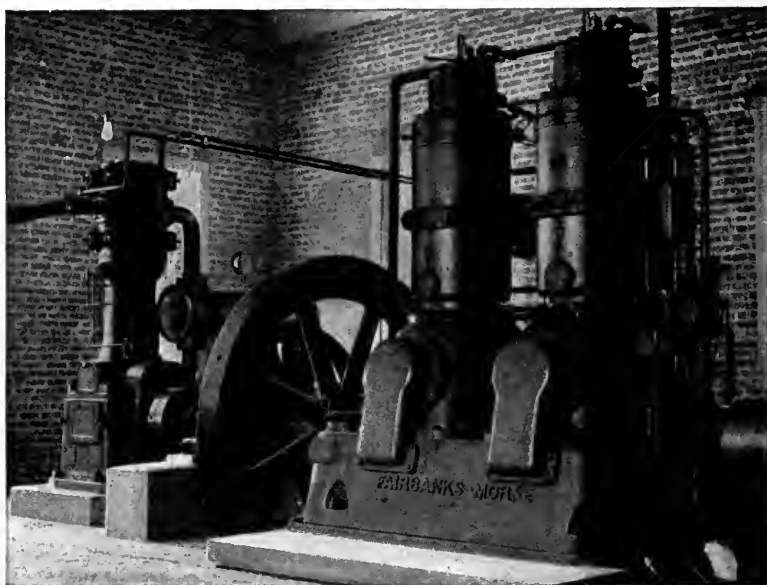
the well. The water is drawn through these coils and discharged into a small overhead supply tank by means of a 5- by 5-inch Fairbanks - Morse Typhoon circulating pump. This is belt-driven from the engine shaft extension between the outboard bearing and the compressor.

The compressor is of the Sullivan angle compound type, equipped with plate valves, with the high- and low-pressure members accurately balanced and with all working parts completely enclosed and lubricated by a combination positive and gravity automatic oiling system. As shown by the illustration, the installation is exceedingly compact and occupies but little floor space.

Tests were made on the well to determine the exact size of piping and depth calculated to give the best operating efficiency. The action of the air-lift foot-piece employed provides a very thorough emulsion of the compressed air and inflowing water, so that the flow from the well is in a constant stream with very low factors of slippage and leakage.

Water is supplied by one well 1,500 feet deep, 12 inches in diameter below the surface casing. The static level is 293 feet, and the water drops 46 feet when the pump-





INTERIOR OF GALVA, ILLINOIS, PUMPING STATION AS REMODELED

ing load is on. The surface reservoir is 5 feet above the collar of the well, making a total lift of 344 feet. The foot-piece is placed so as to have 201 feet, or a 37 per cent. submergence, giving a total length of 545 feet of vertical discharge.

The plant operates under a normal load at 107 pounds air pressure, and 247 gallons per minute are pumped at a compressor speed of 263 revolutions per minute. The compressor delivers 375 cubic feet actual free air against the above pressure, or 1.52 cubic feet of actual air per gallon of water pumped. Measurements taken at the plant with the centrifugal pump shut down showed a consumption for air-lift purposes only of 6 gallons of oil per hour. This oil is purchased at 6 cents per gallon, and the pumping day is 16 hours, making an output of 237,120 gallons per day at a total fuel cost of \$5.76, or 2.429 cents per 1,000 gallons for air-lift work.

The following table shows the operating

conditions for the entire plant. The centrifugal pump operates against a head of 42 pounds and requires 16 boiler horsepower:

Lift in well .....	344 feet
Pumping head centrifugal pump 42 pounds by 2.31.....	97 feet
Total head .....	541 feet
H.p. developed by "Y" engine....	90 h.p.
Theoretical water h.p.....	33.7
Efficiency .....	37.4 per cent
Gallons fuel oil per hour.....	7
Cost at 6 cents.....	42 cents
Gallons pumped per hour.....	14,820
Fuel cost per 1,000 gallons.....	2.834 cents
Lubricating oil cost per 1,000 gallons .....	.025 cents
Total cost per 1,000 gallons.....	2.859 cents

This plant makes an ideal pumping system for deep-well work under the conditions described. The fact that all the moving parts are in one combined unit in the engine-room, fully accessible and under the eye of the operator, and that no repairs or adjustments are necessary from time to time in the well itself, constitutes a distinct advantage and greatly reduces the operating costs.

### Pure Drinking Water in New York State

According to the Division of Sanitation of the New York State Department of Health, 9,182,000 of the 10,651,000 people who live in the state of New York are now supplied with drinking water from public water-supplies, and 7,796,000 drink water that has been sterilized.

# Park Lighting in St. Louis

By J. A. Hooke and Ralf Toensfeldt

Director of Public Utilities and Chief Electrical Engineer, respectively, St. Louis

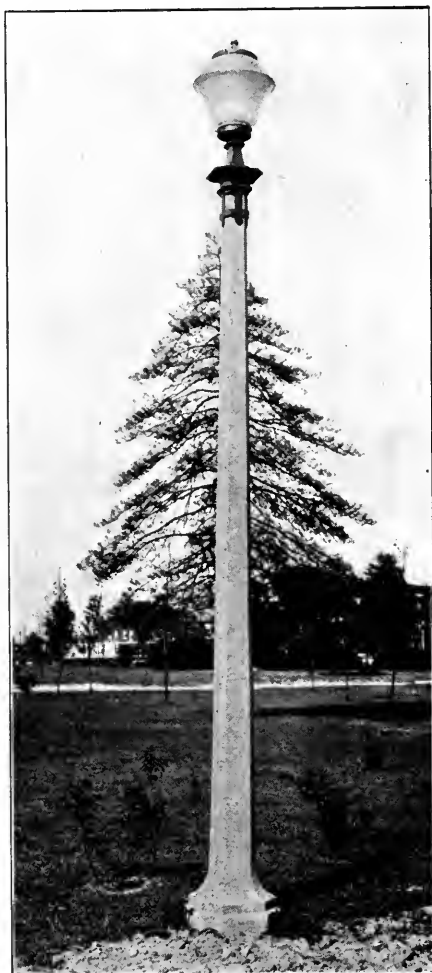
THE city of St. Louis has standardized on its park lighting equipment, having now, installed and in service, 616 concrete standards, manufactured by the city, on which are mounted ornamental fittings with upright ornamental refractors. The 100- to 600-candle-power lamps, burning on a street series system, are mounted on these posts 15 feet above the surface of the street. Care is taken to entirely enclose the lamp as nearly as it is possible, in order to avoid the accumulation of dust on the inner glass and on the lamp.

These standards are spaced approximately 140 feet apart on the average, which gives a minimum illumination of about 0.02 foot-candles. The ratio of minimum to maximum illumination is slightly over 4.

The Holophane glassware which has been adopted places approximately 50 per cent more of the total light from the lamp on the street surface, where it is useful, than other methods which have been tried, thus making possible a system of comparatively uniform illumination which we feel is highly desirable. Further, the glassware is pleasing in appearance, both when illuminated and when dark.

Although we have found the first costs are somewhat higher than those of other types of glassware, the maintenance cost is low. Based on two years' experience, glassware costs have been computed at 16 cents per year, or approximately breakage of 0.8 of one per cent per year. This contrasts very favorably with the 50 per cent breakage which has been experienced by the gas lighting contractors furnishing light for a portion of the city.

There has also been great economy in lamp wattage necessary for a given illumination. This creates not only a saving in the cost of lamp renewals, but also a saving in current consumption. The following data give the average costs for installations of this type of lamp as compared to the cost of gas lighting in St. Louis. This tabulation gives in detail the total, as well as the unit, cost of maintenance, figuring



TYPICAL LIGHTING STANDARD IN ST. LOUIS PARKS

maintenance as operation as well as repairs, for electric lights:

	Total Cost	Unit Cost
Current .....	\$20,139.19	\$5.5597
Labor .....	17,644.00	4.8797
Glassware .....	4,289.24	1.1862
Lamp renewals .....	6,898.02	1.9079
Miscellaneous supplies .....	6,891.92	1.9059
Total .....	\$55,862.37	\$15.4487

This gives a unit cost of \$15.45, representing the total yearly operating cost of

the average lamp, the candle-power of which in St. Louis is about 106. To this figure must be added the investment charge, amortized over a period of 20 years. This amounts to \$12.46, making a total cost per

year of \$27.91 per average lamp. The cost for 60-candle-power gas lamps, figured on the same basis, is \$29.56, and for 120-candle-power gas lamps, the cost is \$43.94.

## Public Health or Esthetic Problems?

UP to ten years ago it was not at all uncommon to find garbage and refuse disposal a function of the local health department. Although to-day this is usually a responsibility of some other department, health departments are still often concerned with the investigation of complaints regarding uncovered or inadequate garbage receptacles and insanitary conditions of alleys and yards. Undoubtedly such conditions are nuisances which ought to be attended to. There is, however, an unanswered question as to where the public health problem ends and the purely esthetic problem begins. Uncovered garbage cans are unquestionably unsightly, disgusting and odorous and as such are a nuisance which should be abated. In providing a food supply for rats they produce an additional nuisance which in seaport cities forms a distinct public health menace. In breeding flies the nuisance is still further increased and a potential carrier of disease is produced. The fly undoubtedly plays a more important part in the transmission of disease in rural communities, where large numbers of open privies are to be found, than it does in cities, where methods of sewage disposal are more sanitary. Accumulations of refuse, except as a possible home for rats, unless they contain organic material, are chiefly nuisances against our esthetic senses and do not form an important public health problem.

Whether or not improper care of garbage constitutes a real public health problem is chiefly a question as to how great a menace the rat is, how many flies breed in garbage and what part the fly plays in the spread of disease. The rat anywhere is a potential source of danger, but in inland cities where plague is not endemic, it seems unlikely that he plays any very important part in the transmission of disease. The rat problem in such communities is chiefly an economic one, the annual losses caused by rats being enormous. Should the Great

Lakes cities become trans-Atlantic ports this problem might well be one of public health.

We are accustomed to think of garbage as a breeding-place of flies, but, as a matter of fact, how many of them actually do breed there? Manure is, of course, a much more favorable breeding-place than garbage, and in cities where garbage is collected once a week or oftener there should be no fly-breeding provided the collector entirely empties each receptacle. Where collections are regular, any flies which hatch out must have been bred either in the small residue left in the receptacle after collection has been made or in spilled garbage. The passing of the horse and the substitution of the automobile has very greatly reduced the fly problem, especially in the cities. If there were a better observance of the law requiring householders to clean garbage receptacles and more attention given to the disposal of spilled garbage, the number of flies would be decreased still further.

Do flies present an important public health problem in the modern city? Frankly, we have not the knowledge to definitely answer the question, but it seems probable that with the decrease in the number of flies and with the great majority of homes properly sewered, there is comparatively little opportunity for the fly to spread communicable disease.

There isn't the slightest doubt but that money is well spent on garbage and refuse disposal and their attendant nuisances, but there is a question as to whether or not money should be spent from public health appropriations for these purposes unless they present important health problems. If, for example, a city makes an appropriation of \$2 per capita for public health and 70 cents of that \$2 is spent on garbage, rat, and refuse complaints, is that city really spending \$2 per capita on public health? We are inclined to feel that it is not.

—*Weekly Health Review, Detroit, Mich.*

# Housing Water-Works Pumping-Stations

By Charles B. Burdick

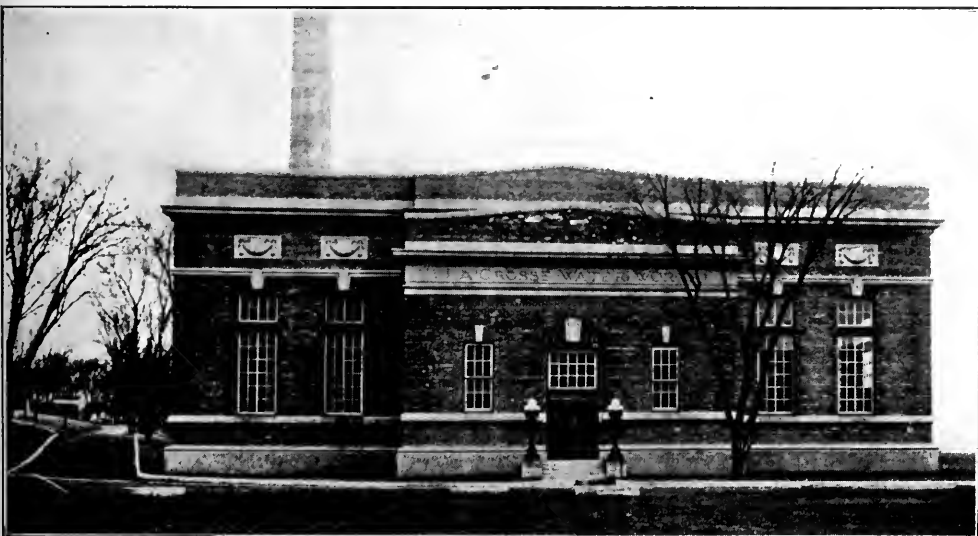
Alvord, Burdick & Howson, Engineers, Chicago

**T**HE average water-works involves an investment not less than \$35 per capita, or, say, \$3,500,000 in a city of 100,000 people. Of this large investment, often not more than 5 or 10 per cent represents structures visible to the eye of the ordinary citizen. To the casual observer water-works buildings present the only visible evidence of the excellence of the plant, except the water delivered, and his

frankly adapted to its purpose, and should present an appearance agreeable to the eye.

## Permanence

Water-works construction is now sufficiently standardized so that it is possible to lay out pumping-plants subject to enlargement in such manner that the buildings may be useful indefinitely. The pumping and



POWER PLANT AND PUMPING STATION OF THE LA CROSSE, WIS., WATER-WORKS

impression as to the property is likely to be based upon what he can see.

Fundamentally, there is no reason why the water-works station should not present the same attractive appearance as the city hall or any other municipal building. It should be permanent, clean, and as easily kept clean as a modern hospital, for it handles a commodity used in every home. An ornate design justified in a city hall or a court house would be out of place in a pumping-station. Rather, it should represent the masculine in architecture, without undue pretension, should be strong and permanent in its lines and materials and

power equipment should be arranged with the idea of expansion. It is usually practicable to build only for a moderate time in the future, but it costs little to lay down the indefinite future additions on paper, and to so locate the building and so arrange the equipment that extensions may be made without destroying the usefulness of important parts of the plant.

In the ordinary water-works plant, steam-operated, there is, first, the heart of the plant, so to speak, consisting of the main entrance, offices, and possibly a laboratory, which may be grouped and will need little further expansion. The engine-room and

the boiler-room, after providing for the present and the immediate future, may be expanded along parallel lines without necessarily spoiling the architectural symmetry. It is wise to be liberal in selecting dimensions. This tends toward permanency.

If the water is filtered, it is desirable in small pumping-stations to centralize the "business end" of all the station operations, on account of facility in supervision. This complicates the design, especially the provision for future expansion, and centralization is not always possible when filtration is added to an old water-works. In the layout of a new plant, however, it is practicable to so coordinate the expansion of pump-room, boiler-room, filter-plant, coagulation-basin, and clear well, that each may be enlarged in an orderly manner with convenience of access between the operating parts and the administrative center of the group. Basins and reservoirs may expand, if necessary, forward from the building, utilizing a space covered over by lawn. Plants in cities up to 100,000 population, or somewhat more, may thus be designed without the necessity for separating the pumping and filtration plants. A compact arrangement is quite necessary for economical operation in a small city where it may be desirable to operate filters without adding to the number of employees.

#### Fire-Proof Construction

The modern water-works station is fire-proof throughout, for obvious reasons. Permanency requires it. It should be the last building to burn in any community. Many water-works stations are practically fire-proof except for the roof construction, windows, and doors. It is practicable to build stations to-day without using a stick of wood, and at moderate costs as compared to that of wood. Mill-work has increased in price to such extent that there is little difference between wood and metal frames, and concrete and tile construction is generally used for roofs in the most modern stations.

For underground structures or for other structures more or less concealed and protected from the weather, concrete gives excellent service. Where exposed to view or subjected to the action of the elements, it is not proving a satisfactory building material. Wherever possible, it is wise to so design reservoirs that they may be filled over and sodded, thus protecting the concrete from the expansion and contraction of hot sun and winter cold and, incidentally, better protecting the water from extremes of temperature.

For superstructures, brick and stone are the most satisfactory materials for exteriors, terra cotta may be useful upon the interior or the exterior. Upon the interior the surface should be clean and non-absorbent. Concrete floors are satisfactory only in the cheaper structures where they may be successfully used if covered with a heavy non-absorbent paint especially adapted to concrete. In the better stations terrazzo or tile is justified.

Walls, particularly where damp, as in the pumping-pits, should be faced with a non-absorbent substance, such as enamel brick, built at least head high. Above this plane pressed brick is satisfactory. At present a rock plaster is available almost as hard as stone, which can be worked into very attractive panel designs at moderate cost.

For the roof, exposed steel trusses are generally used with steel purlines and a roof covering of reinforced concrete or tile. In order to prevent sweating in cold weather, a double ceiling is desirable. This may be accomplished by rock plaster on metal lath hung from the purlines. Thin concrete roofs usually become a nuisance at certain times from dripping. A single thickness of 5 inches is usually sufficient to prevent the serious collection of drops. A double ceiling completely eliminates the trouble and costs comparatively little more. Skylights and ventilators must be guarded with gutters for satisfactory results.

ACKNOWLEDGMENT.—From a paper read before the American Water Works Association.

## Asphalt Supplants Wooden Crosswalks

SEVERAL years ago the Department of Public Works, Portland, Ore., discontinued the laying of wooden crosswalks because of the greatly increased cost of lumber. Crushed rock walks, bound with asphaltic cement, were substituted. This form of asphaltic penetration macadam walk has proved

cheap and durable, and has aroused practically no protest from property owners, so that according to the Department of Public Works, unless the price of lumber is greatly reduced, it is unlikely that the old wooden crosswalks will ever be reestablished in the city of Portland.

# "Kinks" in Municipalities

By William D. Ennis

Vice-President, Technical Advisory Corporation, New York

IT must be a great thing to be a city planner. A man who calls himself one is claiming a great deal. A city is one of the most complex organisms in the world, and the hardest to plan, especially so because the planning generally begins anywhere from fifty to a thousand years too late. Rather close observation over a considerable period has led the writer to believe that the city planner ought to be a pretty fair architect, a landscape artist, all kinds of an engineer, some kind of a lawyer, and certainly a diplomatist, if not a politician.

Speaking as a mere engineer who could not tell a Corinthian frieze from a belt course, some of the more concrete phases of city planning seem to constitute the largest and most interesting problems in the world. There are a few of these problems which are chiefly interesting because of their difficulty, and among these few there is the type of problem resulting from geographical peculiarities, especially those which affect contiguous municipalities. The difficulty is usually what may be described as diplomatic. Everyone admits the disadvantages of the peculiarity; everyone, in theory, would like to see it eliminated or corrected. In practise, no one seems to know how to placate the various opposing interests involved.

## One Community—Two Towns

A "kink" is a twist or a tangle, and there are plenty of tangles in every phase of municipal activity. The particular kind of kink in mind at this moment is that which is purely geographical. As an example of a very common sub-variety of kink, Figure I is presented. Here are two adjoining towns with a rather rectilinear street layout, but having a boundary that forms a non-rectilinear angle with the streets. We are so used to this in the sections near New York that we expect it as a matter of course. Any proposal to remedy it is apt to be dismissed as absurd, and yet when we think of the absurdities

that arise because of it, almost any remedy looks rational by comparison.

In cases like this, the municipal boundary is often recognizable, as one rides along the street, by an abrupt bump where the pavement changes from one type to another. Sidewalk types, street planting, street lighting and all the visible paraphernalia of the street tend to break off and change type. The invisible features, in many cases, actually do break off. Sewers, which can most economically be constructed on the basis of territorial rather than political conditions, are necessarily complicated and extravagant. The same statement applies, in a lesser degree, to water-supply facilities. But this is only the beginning of the matter. A house may lie partly in one town and partly in another.



FIG. I—A GEOGRAPHICAL KINK

A man lives in Rome and breakfasts in Constantinople. If he rolls over in bed, he transfers himself from one body of statutes and ordinances to the jurisdiction of another. He may legally keep chickens in one half of his back yard and may not in the other. When a child is born, there may be some uncertainty as to which bureau of vital statistics is entitled to the news.

### Transportation Facilities That Don't Facilitate

Another type of kink is suggested by Figure II, which shows four neighboring communities, having the populations indicated. Particular attention is focused on Community "A." Its transit lines to the metropolitan community "B" must pass through "C" and "D," and these transit lines therefore depend upon the two intervening, uninterested communities for their franchises. Again, the easterly section of Community "A" is an immense marsh with no north-and-south roads across it. The only way to travel from the southern part



FIG. II—FOUR NEIGHBORING COMMUNITIES

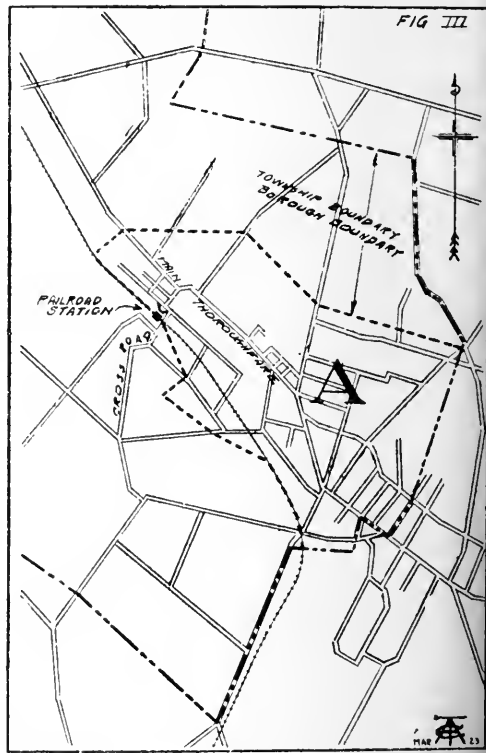


FIG. III—SHOWING BOROUGH AND TOWNSHIP BOUNDARIES

of "A" to the important industrial section toward its eastern limit is by going through "C" into "B" and back again into "A," after having twice crossed a river on bridges in which "A" exercises no ownership.

Such kinks are not confined to the larger and more important communities, but sometimes occur in rural sections. Take, for example, Figure III, and notice the peculiar outlines of Borough "A," marked off from the township. What produced these particular lines, it would be hard to say. In fact, almost nobody knows just where the lines are. The writer was born within an eighth of a mile of the northern extremity of the borough and knows the section pretty thoroughly, but has never been able to determine just where the northern boundary met the track. An important recent roadway improvement was made on the cross-road running west of the track from a point just south of the station. But the short connecting road at the station (which ties this up with an important main thor-



oughfare) is in the borough and not in the township. Consequently, a hundred feet of mud often intervenes between the newly improved road and the station. It is easy to say that this difficulty can be removed by proper cooperation. But why get into snarls which necessitate special cooperation to get out of?

One of the most atrocious kinks in municipal configuration ever found is that suggested by Figure IV. Community "A" is bounded on all sides by the river or by Community "B." There is absolutely no through street from the northern to the southern end of Community "B." If a fire engine, which is housed in the northern end of "B," has to go to the southern end, it must pass through the main street of "A," upsetting all of that city's traffic and endangering the lives of its citizens. The cost to Community "B" for policing, lighting and supplying with water, sewer facilities, etc., its rather sparsely settled southern end, is inordinately great. There is almost no end to the inconveniences and wastes which result from this foolish layout.

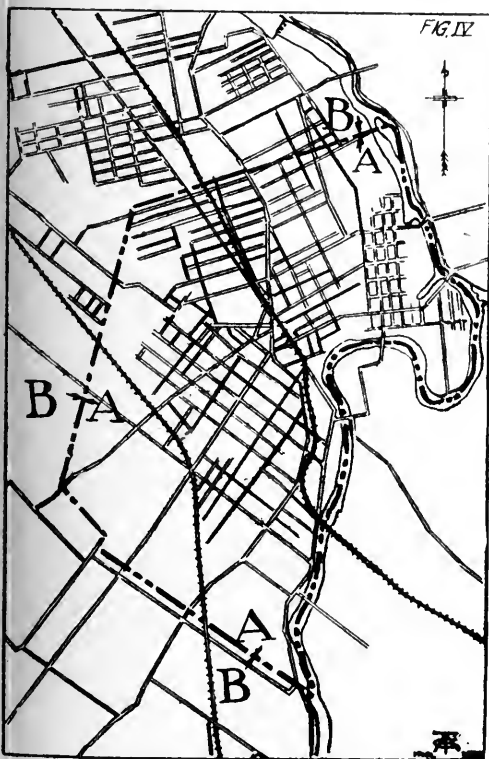


FIG. IV—COMMUNITY "A" BOUNDED ON THREE SIDES BY COMMUNITY "B"

### Coordination the Ultimate Phase of City Planning

Possibly these things seem more absurd to an engineer accustomed to the planning of things in which execution is easy, than to a city planner who knows the difficulties in the way of putting his plans into effect. Nevertheless, there is a point here for consideration. Many years ago the writer heard Andrew Carnegie say that the epitaph he wanted on his tombstone was something to the effect that he had been able to get about him men cleverer than himself to work for him. Mr. Carnegie suggested only half the truth. It is an achievement for any man to get another man to work for him. It is an infinitely greater achievement for any man to get *many* men to work together for him. In other words, coordination is the highest phase of management. So, also, coordination might be set up as the ultimate phase of city planning. The man who works with Community "A" in Figure I may be doing something of immense value to that community, but he will be doing a much bigger thing if he works with Communities "A" and "B" together, treating them as a unit.

### An Economic-Ethical Theory of City Planning

There is an old saying to the effect that by the time he is forty, a man becomes either a philosopher or a fool. In other words, any person of fair intelligence ultimately arrives at a creative theory of life. The creative theory which is driven home to the present writer more and more is one that is difficult to put in words, and yet that is really fundamental. It is what we might call an economic-ethical theory. That is, it has to do with what *should be* in the realm of economic things. It may be stated thus: What adds to the sum total is good; what detracts from the sum total is bad. From this standpoint, questions as to distribution between individuals or interests are indifferent. They perhaps belong to the truly moral realm. But in the economic realm, we should aim solely at those things which build up the sum total of benefit. From this standpoint, sabotage is bad. It destroys property. Again, to use a crude illustration, the office boy who purloins a sheet of paper to write to his girl, offends, but the boy who takes a sheet and uses it as scrap paper offends

still more. In the first case, the offense is mainly a transfer of wealth; in the second case it is a destruction of wealth. Now applying this to city planning, there is no economic-ethical gain when one city advances at the expense of another. The real gain is accomplished when the total effect of a city planning program in a region or district is one of advancement. It is really dangerous to narrow the activities of any movement for attainment, even the city planning movement. It is the effect on the whole situation which counts, and nothing seems likely to affect the whole situation as favorably as the elimination of tangles between communities.

We must get away from an insular attitude. For more than a generation, the side-

walks on the west side of lower Manhattan have been encroached upon by produce merchants, to the great inconvenience of commuters who live in New Jersey. Jerseyites have no votes in New York! Broad planning forgets artificial boundaries when it is desirable to do so. Boston, for example, cannot build the Boston of the future by erecting a spiritual spite-fence along its municipal boundaries; Boston, to the larger mind, means Somerville as well as Beacon Street, Malden and Quincy along with the Back Bay, and Brookline no less than the North End. Internationally-minded people are still in the great minority. Perhaps it is not premature to demand, now, an occasional exhibition of the inter-municipal mind.

## The Municipal Gas Plant of Rocky Mount, N. C.

By L. M. Jordan

Superintendent, Gas Department, Rocky Mount Public Works, Rocky Mount, N. C.

THE regular reports of the auditors of the City Treasurer's books of Rocky Mount, N. C., do not show a separate report for the Gas Department, inasmuch as the administrative affairs of the city are conducted as a unit. The city of Rocky Mount issued bonds for \$150,000 in 1914 and built a municipal gas plant, installing one 4-foot water gas set, one 50-horse-power boiler, two 14-foot purifying boxes, one 5-foot station meter, one 12,000-gallon oil storage tank, and one 100,000-cubic-foot gas holder. In addition to the plant, about ten miles of cast iron gas mains were installed. The following table shows the number of consumers and the consumption of gas as of August 1 each year from 1915 to 1921, and as of November 1, 1922, and August 1, 1923:

Date	Number of Consumers	Monthly Gas Consumption
August 1, 1915.....	307	548,600
August 1, 1916.....	491	849,600
August 1, 1917.....	608	1,698,300
August 1, 1918.....	821	2,095,300
August 1, 1919.....	1,200	2,889,800
August 1, 1920.....	1,719	5,379,100
August 1, 1921.....	2,021	7,478,600
November 1, 1922.....	2,232	9,575,800
August 1, 1923.....	2,400	9,800,000

The portion of the city covered by the

municipal gas mains has a population of about 12,000, and 95 per cent of these are consumers using gas for cooking, heating water, lighting and other services.

In addition to the original \$170,000 bonds, the city has invested \$330,000 in the Gas Department. There are now about 22 miles of mains and the plant consists of one 8-foot 6-inch water gas set, one 5-foot set, one 4-foot set, one 150,000-cubic-foot relief holder, one 100,000-cubic-foot storage holder, one 300,000-cubic-foot storage holder, two 14-foot purifying boxes, two 20-foot purifying boxes, three oil storage tanks with a capacity of 120,000 gallons, one 110-horse-power boiler, one Thomas meter with 100,000 cubic feet hourly capacity. All of this equipment is modern and up-to-date and is working efficiently. We are now making arrangements for the installation of one 214-horse-power boiler and the erection of a 110-foot stack.

In the first three years of operation the Gas Department showed a deficit of \$600 after paying all operating charges and 6 per cent interest on its bonded indebtedness, and allowing 5 per cent depreciation. The next three years of operation

showed a net earning of \$34,000 after paying interest, depreciation and all operating charges. The gross earnings for the year ending June 1, 1922, were \$37,808.55, with a depreciation of \$10,025.40, leaving a net earning of \$27,783.15. The estimated net earning of \$27,783.15. The gross earnings for the year ending June 1, 1923, were \$45,000, with a depreciation of \$12,000, leaving a net earning of \$33,000.

The rates from the start of the plant until September 1, 1920, were as follows:

- \$1.50 per thousand cubic feet gross
- 10 per cent discount for payment by the fifth of the month
- 10 per cent discount for payment by the fifth of the month on amounts of 15,000 cubic feet or over

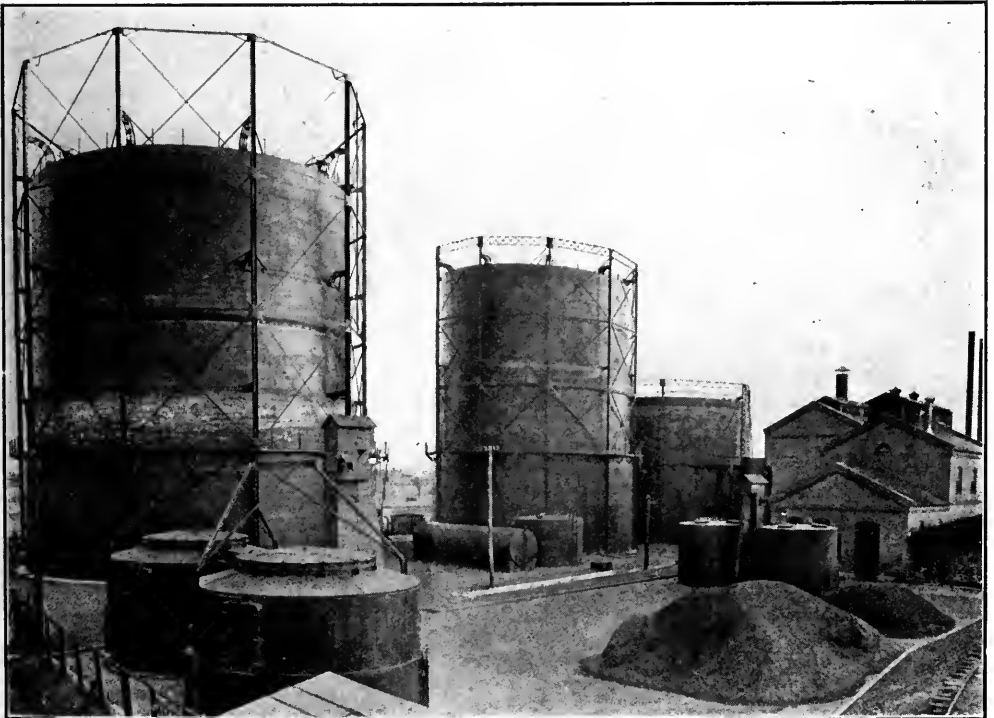
An increase was made on September 1, 1920, and again on October 1, 1921, when the following rates went into effect:

- \$1.70 per thousand cubic feet gross
- 10 cents per thousand cubic feet discount for payment by the fifth
- 20 cents per thousand cubic feet discount for payment by the fifth on amounts between 15,000 and 50,000
- 30 cents per thousand cubic feet for payment by the fifth on amounts of 50,000 and over

On March 1, 1923, the rates for gas were again changed, and they now stand as follows:

- Gross rate \$1.70 per thousand cubic feet
- First 10,000 cubic feet 10 cents per thousand cash discount
- From 10,000 to 20,000 cubic feet used in one month, 20 cents per thousand cash discount
- From 20,000 to 30,000 cubic feet used in one month, 30 cents per thousand cash discount
- From 30,000 to 40,000 cubic feet used in one month, 40 cents per thousand cash discount
- Over 40,000 cubic feet used in one month, 50 cents per thousand cash discount

In February, 1916, the Gas Department opened an appliance store, and since that time has been selling all appliances at 20 per cent profit with a 10 per cent discount for cash, or giving the purchaser a 10-monthly payment plan. This department has been very successful and has shown a profit each year, the net profit for the year ending June 1, 1923, having been \$9,700. Its success has been due largely to selling good appliances, attending to all complaints promptly and keeping a good normal pressure in the mains.



GENERAL VIEW OF THE ROCKY MOUNT, N. C., MUNICIPAL GAS PLANT

# How New York's Street Plan Came to Be Rectangular and Its Down-town Parks So Small

A Bit of History of Special Interest Because of the Recent Celebration of the Twenty-Fifth Anniversary of the Greater City of New York

THAT not merely the sins of the fathers, but their errors in judgment as well, are visited on the third and fourth generation is evident from a study of early city planning in America. An instructive instance is to be found in the report of the Commissioners of Streets and Roads in the City of New York, submitted on May 4, 1811, to Mayor DeWitt Clinton, this embodying the first real effort toward the adoption of a comprehensive plan for the future development of the rapidly growing city.

Governing reasons for the adoption of the rectangular system are quaintly but forcibly described in the report, the original manuscript of which is on file in the office of the President of the Borough of Manhattan. It is evident that two factors which are regarded as of major importance in city planning to-day—vehicular traffic and the density of population with its intensive building development—were not foreseen a century ago. It is evident, too, that the use of New York's water-front and waterways almost wholly for commercial rather than recreational purposes was not foreseen by the planners of 1811.

The following paragraphs are from the report of the Commissioners, written, as will be observed, in the third person:

"One of the first objects which claimed their attention was the form and manner in which the business should be conducted: that is to say, whether they should confine themselves to rectilinear and rectangular streets or whether they should adopt some of those supposed improvements by Circles, Ovals and Stars which certainly embellish a plan whatever may be their effect as to convenience and utility. In considering that subject they could not but bear in mind that a city should be composed principally of the habitations of man and that strait sided and right angled houses is the most cheap to build and the most convenient to live in. The effect of these plain and simple reflections was decisive.

"It may to many be matter of surprise that so many vacant spaces have been left and those so small; for the benefit of fresh air and consequent preservation of health. Certainly if the City of New York were destined to stand on

the side of a small stream, such as the Seine or the Thames, a great number of ample places might be needful. But those large arms of the sea which embrace Manhattan Island render its situation in regard to health and pleasure, as well as to the convenience of commerce, peculiarly felicitous. When therefore, from the same causes, the price of land is so uncommonly great, it seemed proper to admit the principles of economy to greater influence than might, under circumstances of a different kind, have consisted with the dictates of prudence and the sense of duty.

"It appeared proper, nevertheless, to select and set apart to an elevated position, a space sufficient for a large reservoir when it shall be found needful to furnish the city, by means of aqueducts or by the aid of hydraulic machinery, with a copious supply of pure and wholesome water. In the meantime, and indeed afterwards, the same space may be consecrated to the purposes of science when public spirit shall dictate the building of an observatory.

"It did not appear proper only, it was felt to be indispensable that a much larger space should be set aside for military exercise as also to assemble, in case of need, the force to defend the city. The question therefore was not, and could not be, whether there should be a grand parade but where it should be placed and what should be its size, and here again it is to be lamented that in this late day the parade could not be brought further south and made larger than it is without incurring a frightful expense.

"The spot nearest to that part of the city already built which could be selected, with any regard to economy, is at the foot of those heights called Inklangbergh in the vicinity of Kips Bay. That it is too remote and too small shall not be denied; but it is presumed that those who may be inclined to criticism on that score may feel somewhat mollified when the Collector shall call for their proportion of the large and immediate tax which even this small and remote parade will require."

The "remote" spot which was intended to be reserved for a "grand parade," as described in the foregoing paragraphs, comprises most of the region which is now bounded by 23rd and 34th Streets and by Third and Seventh Avenues—an area in which, as New Yorkers and their visitors well know, are now located many of the largest hotels, department stores and office buildings in the city.

# Forward Steps in City and County

## Determining Values for Assessment Purposes

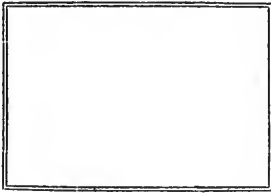
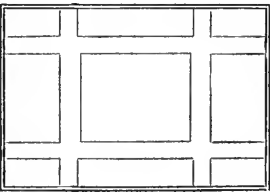
MAMARONECK, N. Y.—Two forms, one of which is reproduced herewith, are being used by the Town Board of Assessors of Mamaroneck as a means of accumulating in convenient form all available data for determining values for assessment purposes.

A form for new construction is used for all buildings assessed for the first time. The land, we assume, has always been assessed in some way, but the building is entirely a new creation and comes to our notice for the first time in history. We regard it important, therefore, to have all available data before us on a grievance day, and the little pictures present all the external facts. They will usually answer any question as to the value of the structure, when accompanied by the owner's own estimate of cost, as shown by the filed plans, the purchase price, the mortgages, etc. Our maps show in color the construction material—brown for stone, blue for stucco, and yellow for frame, so that, with the map, the field book and these forms, we have a comprehensive record in relation to buildings assessed for the first time.

The form for revision purposes is designed to meet a frequent complaint, or rather question, as to the comparative values of surrounding property. It will be noted that we hint at our right to put complainants under oath, and that the assessment may be reduced or in-

creased according to the facts developed, or perhaps the entire section revised down or up. In most cases, when we hand these to questioners, we do not get them back. Finding that we are only trying to be fair, seeking equalizations rather than increases, they forget all about it. We had but one complaint on last grievance day, although we receive applications for revision at any time. Only once in years has there been a suit for reduction, and the Commissioners affirmed our decision. Then we voluntarily made a slight reduction, as a concession to cover the legal costs.

FERDINAND FISH,  
Chairman, Town Board of Assessors.

<b>YEAR 192 .</b>		<b>OWNER</b> .....	
	<b>SECTION</b>		
	<b>BLOCK</b>		
	<b>LOTS</b>		
	<b>Street No.</b>		
	<b>MAP</b>		
<b>TOWN OF MAMARONECK</b>			
<b>Description of New Construction Assessed</b>			
DATE OF COMPLETION .....		DATE OF EXAMINATION .....	
LOCATION OF PROPERTY .....			
CHARACTER OF BUILDINGS .....			
SIZE OF BUILDINGS .....	STORIES .....	HEIGHT .....	
NUMBER OF ROOMS or APARTMENTS .....		GARAGE .....	
AREA OF LAND or NUMBER OF LOTS .....			
OWNERS TOTAL VALUATION OF LAND AND BUILDINGS		\$ .....	
OWNERS CLAIMED COST OF NEW PART \$ .....		FILED PLAN No. .... \$ .....	
AMOUNT OF MORTGAGE—First \$ .....		second \$ .....	
ANNUAL RENT OR INCOME, \$ .....		FOR SALE .....	
VILLAGE ASSESSMENT,		\$ .....	
FORMER ASSESSMENT		\$ .....	
NEW ASSESSMENT, LAND \$ .....		BUILDINGS \$ .....	
GENERAL REASON FOR AMOUNT FIXED .....		TOTAL \$ .....	

### FORM USED FOR DESCRIPTION OF NEW BUILDING

The blank measures 8½ x 11 inches. In the space at the upper left-hand corner a photograph of the building is inserted, and its exact location is indicated in the upper right-hand corner

### **Bus Succeeds Where Trolley Didn't**

ONEONTA, N. Y.—For many years the north side of the city of Oneonta was served by a trolley line which was a part of the Southern New York Electric Railroad System. Much planning and experimenting failed to draw patronage enough to produce adequate revenue. Being a single-track system, delay at passing switches rendered the service so uncertain that the public had no confidence in the schedule. Patrons often were forced to walk or get other means of transportation when pressed for time, and many students having suitcases had to hire cabs.

When paving became desirable upon the streets covered by this line, the program was held up by the traction company, and eventually one street was paved to a header on each side of track area rather than tie up such important work. On other streets the work was held up until the tracks had finally been removed. Often in winter the traction company would sweep snow from the tracks to the roadway on either side, until the street became impassable for other vehicles, and would sometimes abandon service for long periods.

Petitions for the removal of the tracks were liberally signed, and then other petitions protesting against such action were circulated and these were signed also in many cases by students who were only temporary residents. The officers of the State Normal School opposed abandonment. Finally, however, the matter came to the Public Service Commission simultaneously with an application for a bus franchise,

with the result that consent was given to discontinue the trolley service and a permit to operate bus service was given to a private individual. This party at once made arrangements to transfer with the trolley company at junctions and put on a large White bus. Patronage increased at once and through the winter was four times greater than for corresponding periods with trolley cars. The curb service, freedom from long waits at passing switches, and the more reliable schedule were all appreciated. The absence of noise and vibration caused by the trolleys is not the least of advantages gained by the changes. The school authorities and students, as well as the residents, appear to be 100 per cent for the bus service.

Steps are now being taken to bring about a further substitution on the east and west end lines, the operator of the Normal Line bus having made application to operate two busses on this route, and the trolley company having made application to abandon service. This is another case where the company claims to be unable to finance paving in the track area.

While no franchise tax is now required, provision has been made to levy such tax when a fair basis can be arrived at.

CLARENCE C. MILLER,  
Mayor.

### **New Guide Signs in Wayne County**

DETROIT, MICH.—The new type of road sign shown in the accompanying picture is being placed on all the principal highways of Wayne County, Michigan, for the guidance of motor tourists who are unfamiliar with the locality.

The County Road Commissioners have long considered that the placing of accurate direction signs on the highways was one of their most important tasks. As a result, there has previously been erected at every road intersection on the concrete highways of Wayne County a sign which gives the names of both roads and the mileage to the nearest important centers, and in some cases also the mile-



TYPE OF BUS OPERATING IN ONEONTA

age to the terminus of the highway. Thus some of the signs along Michigan Avenue give the distance to the nearest town and also the mileage to Detroit in one direction and to Chicago (this road is part of the old Detroit-Chicago turnpike) in the other direction.

It is the aim of the road commission to serve not only the motorists of Wayne County, but those who come into the county from other sections also. It very often happens that a stranger coming into Detroit or passing through does not know how to approach the city over the best route, or how to take the county roads around Detroit if he is attempting to go on to some further point and wishes to avoid the great congestion of the city traffic. These new signs, we feel, will serve admirably as a guide to all such tourists.

Correct marking of all travelable roads is an important function of the road commission. While the state marks the trunk lines to serve through

traffic, the county commission places signs giving detailed information on its roads so as to direct travelers. It is the plan of our commission to place these big direction signs on all main highways leading into the county.

EDWARD N. HINES,  
Chairman, Wayne County Board of Road Commissioners.

### ***Tombstone's Progress in Education***

TOMBSTONE, ARIZ.—This town of southwestern border fame, the town that forty years ago had ten or fifteen thousand people and was considered one of the tough fron-



UNION HIGH SCHOOL, TOMBSTONE, ARIZ.



BILLBOARD MAP OF THE COUNTY HIGHWAY SYSTEM, WAYNE COUNTY, MICH. THE ONE HERE SHOWN IS LOCATED WHERE ROUTE M 17 ENTERS WAYNE COUNTY, 22 MILES WEST OF DETROIT

tier camps, is now a staid silver mining camp of about 1,500 people and has two primary schools, one grammar school, and a Union High School, which has just been opened at a cost of about \$100,000. The Tombstone which at one time believed in a great white way of the questionable type, which once licensed both saloons and gambling halls, has now turned its attention to education, and to-day it has school facilities so good that many families live in Tombstone solely to take advantage of them.

The new Union High School, besides housing the students in class and study rooms with large halls, has an auditorium seating 325, with a large stage. It also has a fully equipped gymnasium. The building is of concrete and tile blocks, and has its own electric and steam heating plant.

A. H. GARDNER.

### ***Civic Club Demonstrates Value of Open-Air Schools***

PITTSBURGH, PA.—The recent Child Health Week in Pittsburgh afforded a fine



opportunity of bringing to the front the need of more open-air schools in that city.

The first such school in Pittsburgh was established in 1907 by the Civic Club of Allegheny County at the Tuberculosis League's Sanitarium in the heart of the city. After eighteen months the results were most gratifying, and the Civic Club then decided that a more telling demonstration of fresh-air schools could be made independent of any hospital or sanitarium. Therefore, advantage was taken of an offer of the directors of the Irene Kaufmann Settlement to establish a school on the roof of their new building, which was nearing completion in a congested part of the city.

The Civic Club raised the money to furnish the school and to provide teachers and matrons, and through its efforts a dietitian, a physician and other experts were provided as needed. Pittsburgh already had medical inspectors in the schools, and by arrangement with the Board of Education in the city the neighborhood children who had incipient tuberculosis, anemia, etc., were gathered into this school; the good, warm clothes and food provided by the Club made this group of handicapped children happy and contented on an airy roof

through one of the coldest winters Pittsburgh has ever had. By spring the School Board was convinced that the experiment was a success and took over the expense of the school, asking the Civic Club to continue supervision until the end of the term.

The Civic Club for the last three years has been urging upon Pittsburgh's Board of Education the necessity of establishing schools in other parts of the city. If it were not that financial reasons are temporarily in the way, more such schools in the city would undoubtedly show how thoroughly this idea has been solved to Pittsburgh. Now the Civic Club's Committee on Open-Air School and Child Hygiene has set to work to take care of this need itself; it has raised enough money to build another such school in another district where it is greatly needed.

The exhibition shown below, stimulated a very great interest on the part of those who have children unable to continue their schooling on account of ill health, and the result indicates that another such school will be opened by the Civic Club next fall.

H. MARIE DERMITT,

Secretary, Civic Club of Allegheny County.



CHILD HEALTH EXHIBIT OF THE CIVIC CLUB OF ALLEGHENY COUNTY, PITTSBURGH, DURING THE RECENT CHILD HEALTH WEEK CAMPAIGN. EXHIBITED IN THE WINDOWS OF THE LARGEST MERCANTILE HOUSE IN PITTSBURGH

# The Coal Pile of Water-Works Power-Plants

By Donald H. Maxwell

Principal Assistant Engineer, Alvord, Burdick & Howson, Chicago, Ill.

**T**HE recent increased cost of coal and the troubles experienced in getting a sufficient supply of the right quality have brought the coal pile forcibly to the attention of the water-works superintendent.

Although the amount of coal required for water-works pumping in the United States seems small by comparison with the estimated total coal consumption for all purposes, of about 6 tons per capita, it is nevertheless a very considerable amount, and is estimated at approximately three million tons per year. In future years it is likely that much more than this will be required, for even if better economy can be practised in the use of coal by water-works plants, the savings will be more than offset by the increased demand for water by the growing city population. This city population may reasonably be expected to at least treble. When that time arrives, the coal consumption for public water-supply on the present basis will be approximately ten million tons per year.

In the meantime, the general expansion of industry tends to increase the market for coal, while the supply is well understood to be definitely limited and capable of development only at increased cost as the more accessible veins and better grades are worked out. It is thus apparent that the problem of the coal supply and of the economic utilization of coal in the water-works plant is not one of momentary interest alone but destined to be of constantly increasing importance.

## Coal Savings Possible

There is no doubt that the water-works coal pile, taken as a whole, can be very much reduced. The consulting engineer is in a position to note many instances where pumping-plant efficiency might be increased, and others where pumpage might be reduced. It is rather striking, for instance, to note that in our second largest city, sup-

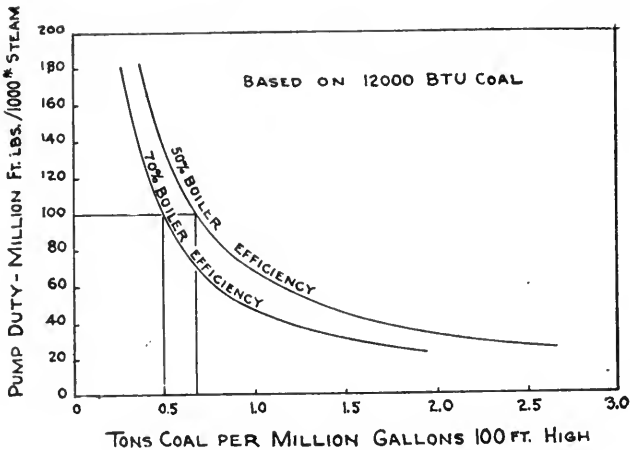
plied with water by ten large pumping-stations of good efficiency, the waste of water in distribution is so great that the estimated possible saving in coal by metering the services would amount to nearly 100,000 tons a year. This plant is, of course, exceptional, but instances taken at random will be given later on that will be sufficient to indicate that there is, in the aggregate, a very considerable waste of coal in water-works plants that can be overcome by giving closer attention to boiler-room economy, to efficient pumping, and to the distribution of water without unnecessary waste.

## Developments in Steam Plant Economy

The first requisite to coal economy is efficient equipment. Great strides have been made in the development of pumping-plant economy since many of our older water-works plants were equipped. In contrast to the hand-fired return tubular boiler of small horse-power, delivering saturated steam at 80 pounds pressure to duplex pumps of very low duty, modern practise calls for stokers, water-tube boilers in large units, with superheaters and with good accessory equipment for maintaining high efficiency, and delivering steam at from 200 to 300 pounds pressure and superheated 100 to 200 degrees. The steam is utilized in cross-compound or vertical triple pumps with test duties ranging from 120 to 180 million foot-pounds per 1,000 pounds steam.

The effect of this change on the coal pile is shown in part (except for superheat) by the diagram. This diagram does not take account of such auxiliary equipment as boiler-feed pumps and the incidental uses of coal for station heating, etc., nor does it allow for variation in load. The station duty for a given set of equipment would, therefore, be less than indicated by the coal rates shown on this diagram.

By inspecting the diagram, we see that vertical triple expansion engines of 160



million duty using saturated steam supplied by boilers operating at 70 per cent efficiency would require 0.3 tons of coal to pump one million gallons 100 feet high. On the other hand, with compound direct-acting low-duty pumps of 30-million duty using steam supplied by boilers of 50 per cent efficiency it would require 2.2 tons of coal to accomplish the same result. One plant would consume seven times as much coal as the other to do the same pumping. It is a fact that many of our smaller steam plants compare no more favorably than this with the more modern high-duty station.

#### Advantages of High Pressure and Superheat

To understand the advantage in high steam pressure and superheat, it should be borne in mind:

1. That steam engine efficiency increases with the steam pressure, amounting in turbo-centrifugal pumps, for example, to about 1 per cent decrease in steam consumption for each 10 pounds increase in steam pressure.
2. That, in general, it does not take more coal (to an appreciable extent) to generate steam at relatively high pressure than at low pressure.
3. That engine efficiency increases with superheat, the gain with turbo-centrifugal pumps, for example, being approximately 1 per cent decrease in steam consumption for each  $12^\circ$  increase in superheat. The great advantage of superheated steam in reciprocating engines is that it does away with cylinder condensation (if superheated enough), so that all of the steam entering the cylinder is available to do useful work throughout the stroke.
4. That the additional heat required to superheat steam is much less than the heat

saved by the engine, so that there is a saving of coal. Assuming  $100^\circ$  superheat, this fuel saving amounts to about 4 per cent with a turbo-centrifugal unit, 8 per cent with a triple expansion engine and much more with compound and with simple engines.

#### Limitations of Water-Works Plants

The water-works plant is long-lived compared to the industrial and electric power-plant. The opportunities of business expansion, particularly in electric power production,

make it good business policy to use only the most modern and efficient equipment. The coal bill in these plants is a relatively large part of the cost of power and accounts for the wholesale discarding of comparatively new equipment, and even entire plants, to make way for more efficient units of larger capacity in great central stations that will enable the utility to command more business.

The water-works plant cannot be rejuvenated in this sweeping way. The business of selling water is in most cities fully developed and can only increase in proportion to the growth of the city. The water-works pumping-station represents a comparatively small part of the total plant investment, and the coal bill is also a small part, comparatively speaking, of the total annual cost of the entire plant, including fixed charges. Furthermore, the requirements for fire protection make it necessary, particularly in the small plant, to carry a relatively large reserve boiler and pump capacity, which is idle most of the time.

From these facts it is seen that the water-works plant must move slowly in the procession of increased plant efficiency. Only occasionally, when an entirely new plant is built to replace an outgrown and obsolete plant, does the engineer have the joy of doing what he would like to do in making the plant up-to-date in efficiency of equipment. The more usual case involves more or less important additions to existing equipment, the limitations of this old equipment influencing at times very largely the character and efficiency of the new. It is not always financially practicable to change

over to 200 pounds boiler pressure and 100 degrees superheat, for instance, in a plant with heavy investment in low-pressure pumps and boilers that are still good. The fixed charges on proposed new equipment must always be weighed against the estimated saving in cost of coal, and coal is not high enough yet to warrant the sweeping replacements in the average water-works plant that have been good business policy in some electric power-plants.

### **Planning for the Future**

Even though radical changes in pumping-station equipment may not be justified when renewals are necessary, the superintendent has an opportunity at such times which should not be lost sight of, to map out an improvement program involving the entire plant. It would be most desirable, for instance, in replacing a boiler, to make a survey of the plant and its future requirements, and as a result perhaps find it worth while to install a boiler at comparatively slight increased cost, capable of withstanding a future higher steam pressure and arranged for the installation of superheaters at a later date. Then when the time comes to make pump replacements or additions the boilers will not be a handicap. Judicious provision for the future in this way will do much in the course of time to improve the small water-works station efficiency without sacrificing useful equipment.

### **Boiler Plant Operation**

Meantime, the water-works operator must be contented to make the best use of the equipment now in hand. Even though the low-pressure plant with low-duty machinery must continue operating on this basis for some years, a great deal can often be accomplished in these plants to reduce coal consumption, by close attention to the details of operating that make for efficiency. The watchword throughout the plant should be: "Save the heat units." It might be said that intelligent and conscientious operation of a hand-fired, low-efficiency boiler installation is even more important for coal economy than in a plant with high-efficiency equipment.

Coal saving is not possible without measuring and recording the internal workings of the plant. Between the heat input and the measure of work output there may be a

very large preventable waste of energy, amounting to from 25 to 50 per cent of the coal pile in a poorly maintained plant. So it is not sufficient to know merely the tons of coal purchased and the plunger displacement, and yet, astonishing as it may seem, plants are occasionally met with in which even this meager information is not obtainable in a satisfactory manner.

The efficient operator must know the pounds of coal burned per hour for a given heat output in steam. He must know whether his customary methods of firing give the best results with the fuel at hand. He must know the effect of his practise in draft regulation as to whether the boiler is being unnecessarily cooled by too much excess air on the one hand, or whether, on the other hand, unburned gases are being wasted up the stack from insufficient supply of air to the furnace. And among other things he must know the effect of removing soot and boiler scale and how often it pays as a practical proposition to do this.

In a word, the operator should know whether he is wasting coal in the boilers. To find this out, he needs the equipment and the interest to make routine boiler tests and periodic flue gas analyses.

An intelligent boiler-room force and careful training in efficient methods are essential to economical operation. Furthermore, a suitable bonus system based on coal saved would be a valuable stimulus to interest in a coal-saving program, if the possible savings seem sufficiently great to warrant it.

### **Pump-Room Operation**

Pump-room operation has a very large influence on the coal pile. The coal robber in this part of the plant is pump-slip, though the preventable loss at the steam end may also be considerable.

The output of every pump-room should be metered at the station unless there is some other convenient method of checking up on the pump-slip, at frequent intervals. The use of Venturi meters on discharge lines has become quite general, but there are still many plants which lack proper equipment of this kind. These plants are as a rule paying heavily for it in the coal pile.

The writer has had occasion to observe some startling results from high pump-slip, and there is good reason to believe that this

is one of the principal causes of coal waste in many of the stations that lack proper means of measuring the water delivered by the pumps.

TABLE 1

EFFECT OF REDUCING PUMP-SLIP ON THE COAL PILE

Year	Plunger Displacement, Million Gals.	Coal Burned Tons
1919.....	263.1	1,124
1920.....	299.9	1,288
*1921.....	304.8	1,264
1922.....	237.9	770

Coal saved in 1922, 518 tons—67 per cent of 1922 coal pile.

\* Rebuilt pump back in service in November.

Table 1 shows the result of reducing pump-slip in one plant. The records of this plant for several years show a continual increase in the tons of coal burned per million gallons pumped. The coal bill finally became so high that it was decided to have the pumps rebuilt. The effect of improved efficiency of the steam end and of reducing the pump-slip is very strikingly illustrated by a reduction in the coal consumption amounting to 67 per cent of the coal burned in 1922. Comparison of the 1922 pumpage with that of the two preceding years shows a very marked reduction in pumpage, as indicated by plunger displacement.

TABLE 2

EFFECT OF HIGHER DUTY PUMP ON THE COAL PILE

Year	Pumpage Mil. Gals.	% of Time New Pump Used	Coal Tons	Coal Per Mil. Gals. 100 Ft. High Tons
1910.....	1,839		4,626	1.01
*1911.....	1,919		4,873	1.01
1912.....	2,090	60.9	4,749	0.965
1913.....	2,241	90.7	4,403	0.842
1914.....	2,272	92.6	4,562	0.810

Coal saved in 1914, 1,030 tons—25 per cent of 1914 coal pile.

\* Cross-compound pump of 142 million test duty installed.

Table 2 shows the effect on the coal pile of introducing a high-duty pump to do the work formerly carried on by low-duty pumps. In this plant under the same conditions of operation the high-duty pump accounted for a saving of over 1,000 tons per year, amounting to 25 per cent of the 1914 coal pile.

TABLE 3

VALUE OF TESTING PUMP-SLIP AS MEASURED BY THE COAL PILE

Average daily pumpage.....	12,000,000 gallons
Slip reduced to.....	3,750,000 gallons
Total head.....	700,000 gallons
Coal per mil. gals., 100 ft. high.....	153 ft.
Coal saved per year.....	0.923 tons
	1,570 tons

Table 3 is a rather striking illustration of the very large coal-saving sometimes possible in a comparatively small plant by eliminating excessive slip in a high test duty cross-compound pump. The saving in this case was at the rate of approximately 1,600 tons per year, although inspection of the records tended to show that the excessive slip found on test had lasted only about four months. The records of plunger displacement indicated, however, that up to within one week of the test the slip had been materially higher than indicated by the test, and had been partly corrected by replacing pump-valves.

TABLE 4

COMPARISON OF COAL CONSUMPTION OF STATIONS DOING DOUBLE PUMPING

Plant	Average Daily Pumpage Mil. Gals.	Total Head Ft.	Coal Tons	Coal Per Mil. Gals. 100 Ft. High Tons
A.....	8.83	256	5,317	0.61
B.....	4.98	240	2,672*	1.05
C.....	2.3	280	2,905	1.23
D.....	0.78	263	648	1.30
E.....	1.34	221	1,768	1.63
F.....	2.81	140	2,500	1.74
G.....	8.98	180	11,940	2.02
H.....	3.5	190	6,400	2.65
I.....	2.39	253	7,060	3.2

\* 7 months' period.

Table 4 is shown to illustrate the great difference in coal consumption between stations of the same general type. These are all double pumping-stations in small or moderate-sized cities operating for the most part under direct pressure. Plant "A" is an eastern plant burning Pennsylvania coal. The others are western plants burning Indiana or Illinois coal. The high coal consumption of plant "G" may be partly attributed to wide range in low-lift pump-head. In Plant "H" it is due partly to poor design. In Station "I" the poor showing is due in part to very inefficient low-lift pumping from the use of oversized electric centrifugals, the low-lift pumping being accomplished at an over-all efficiency of 15 per cent for pumps and motors.

Table 5 is shown to indicate the typical low coal rate that is expected in well-designed and well-operated modern stations doing single pumping, and to contrast with them the old-fashioned stations with low-pressure boilers and low-duty pumps. Plant "A" is the North Point station at Milwaukee equipped with vertical triple expansion engines of high test duty of about 180 million foot-pounds. Plant "B" is an effi-

TABLE 5

COMPARISON OF COAL CONSUMPTION OF STATIONS  
DOING SINGLE PUMPING

Plant	Av. Daily Pumpage Mil. Gals.	Total Head Ft.	Coal Tons	Coal Per Mil. Gal. 100 Ft. High Tons
A ...	62.6	211.5	18,954	0.399
B ...	3.86	240	1,800	0.53
C ...	76.5	115.3	18,452	0.572
D ...	10.9	283.5	3,237*	0.684
F ...	6.15	251	4,562	0.810
G ...	0.65	294	770	1.10
H ...	0.5	217	1,500	3.79
H ...	0.5	217	1,500	3.79

\* Five months' period.

ciently operated small station burning Pennsylvania coal in hand-fired boilers and pumping with cross-compound engines against constant head. "C" represents the newest and most efficient of the Chicago pumping-stations, pumping direct pressure with vertical triple and turbo-centrifugal pumps against a total lift of about 115 feet. Steam is generated by water-tube boilers operating at 175 pounds pressure. "E" represents the average of all Chicago stations, considering steam pumping only. At three of the Chicago stations a large amount of pumping is done by motor-driven centrifugals using central station current. At these stations the coal duty has been greatly decreased from their former performance, which is probably to be accounted for by the unfavorable load on the steam plant; 22nd Street now shows a coal rate of 1.41 tons per million gallons, 100 feet high, compared with .83 in 1910, and 68th Street shows a coal rate of 1.3 tons, compared to .85 in 1910.

Plant "D" is the new Des Moines station with stoker-fired boilers 200 pounds steam pressure and 100 degrees superheat pumping with turbo-centrifugals of 143 million foot-pounds test duty. It should be noted that this plant operates on Iowa coal con-

taining 8,300 to 8,800 B. T. U. per pound. The boilers on test showed 72 per cent efficiency at full load and 66.5 per cent at 168 per cent overload. The plant operates direct pressure. It should be noted particularly that this plant burns a much lower grade of coal than the Illinois steam coal used at Chicago.

Station "F," the old Des Moines pumping-station, should be compared with Station "D." This station, with hand-fired return tubular boilers and a cross-compound pump of 140 million test duty operating on 125 pounds steam pressure, required 20 per cent more fuel than the new station to accomplish an equivalent amount of pumping.

Station "G" indicates good performance in a fairly well-maintained plant operating under 90 pounds steam pressure and duplex compound pumps in good condition operating direct-pressure under a high head. Station "H," in contrast to "G," represents very poor performance in a plant having equipment of the same general character and burning just as good coal. This latter plant showed 50 per cent boiler efficiency on test and 25 per cent pump-slip.

These few illustrations show that although some pumping-plants are operating on a highly efficient basis, there are others where large quantities of coal are being wasted. In some of these instances the fault lies in the plant installation, and can only be overcome by putting in better equipment. In others a great deal can be accomplished to improve the plant efficiency by systematically checking up on pump-slip, boiler-firing methods, draft regulation, and all the other details of operating that affect the size of the annual coal pile.

ACKNOWLEDGMENT.—From a paper read before the annual convention of the American Water Works Association.

## ✓ New Street Lighting Installations

THE wave of interest in better street illumination, now sweeping Ohio and reaching small towns as well as big cities, can best be described as "cyclonic." Cleveland, spurred by traffic mishaps, is extending its White Way system on Superior Avenue. An active movement to secure better street lighting in Columbus is reported in the State Journal, and Lakewood, Cleveland's next-door neighbor, is also collecting data. Cincinnati is putting \$50,000

into lighting effects for its Fall Festival. White Ways are authorized in Alliance, Eaton, Hamilton and Marietta. The *Dayton News* reports the opening celebration of an extensive system of 600 c-p units at Sidney, Ohio, giving as the "only criticism" that "all parts of the city ought to be given the value-enhancing benefit of this new illumination by extending it throughout the residential section."

— Light.

# Constant Vigilance Reduces Water Waste in Ottawa, Canada

Water-Waste Surveys Have Greatly Reduced Per Capita Consumption

By H. D. Hoolihan

Pitometer Engineer, Water-Works Department, Ottawa, Canada

**I**N 1912, when the first water-waste survey was undertaken, the population of

Ottawa was 100,180 and the daily pumpage was 18,938,000 Imperial gallons. To-day, with a population of 116,205 in Ottawa; 4,500 in the municipality of Eastview, and 500 in the police village of Rockcliffe, making a total of 121,205 using the water pumped by the Water Works Department, the daily pumpage is 21,000,000 Imperial gallons. The population has increased 21,000 and the pumpage 2,000,000 in a period of nine years. In other words, in 1913, the per capita consumption was 189 Imperial gallons; to-day it is 173 Imperial gallons.

The total cost of the survey, which was carried out by the Pitometer Company in 1912 and 1913, was \$10,329.23. The corporation of the city of Ottawa purchased two Pitometer photo recorders and since 1913 has carried on the work by trained men in the employ of the Department.

The following leaks have been found in our distribution system by the operation of the water-waste detecting devices since 1918, and great strides have been made with satisfactory results:

1919—92 leaks on lead services, ranging in size from  $\frac{3}{8}$  to 1-inch inclusive; 18 leaks on cast iron mains, ranging in size from 3 to 15 inches

1920—254 leaks on lead services, ranging in size from  $\frac{3}{8}$  to 1-inch inclusive; 26 leaks on cast iron mains, ranging in size from 3 to 16 inches inclusive

1921—210 leaks on lead services, ranging in size from  $\frac{3}{8}$  to 2 inches inclusive; 24 leaks on cast iron mains, ranging in size from 3 to 36 inches inclusive

At present the daily consumption is 21,000,000 Imperial gallons.

In 1919 systematized surveys, followed by organized inspections of all water fixtures, mains and services, were started. Since then no less than 764 leaks of various sizes in the services and in the mains have been discovered and repaired up to December 31, 1922. If our outside investigators and testers had not found and repaired these

leaks, the daily pumpage would have been 8 to 10 million gallons greater.

The following table shows how the Pitometer survey has lowered our pumping and established a per capita which we consider good, as approximately only 10 per cent of the water pumped is under meter:

YEAR	Population	Daily Average Pumpage per Capita	Average Daily Consumption
1912.....	95,570	186.9	18,002,482
1913.....	100,180	189	18,938,602
1914.....	101,795	179.7	18,297,517
1915.....	103,163	176	18,160,214
1916.....	100,561	203.3	20,546,415
1917.....	101,549	206.1	20,938,162
1918.....	104,007	217.6	22,632,252
1919.....	112,732	190.7	21,501,488
1920.....	115,738	208.2	24,107,643
1921.....	117,899	180.7	21,295,753

In 1920, 60 distribution mains and some 2,000 domestic services were frozen and repaired, and because of the excessive frost our daily pumpage was as high as 29,000,000 Imperial gallons.

The fire pressure on the old mains and services causes the majority of breaks. A very small percentage of the leaks show on the surface, the water finding its way along the water-main and sewer trenches and through the rocks. Were it not for the method used in detecting this great waste, the leakages would go on indefinitely making increased pumpage necessary.

A staff comprised of three house-service inspectors have been following up inside defective fixtures and piping. Our outside inspection is done by one foreman and six men who do the testing, repairing and digging. The Pitometer is used to test the district, and after a general figure has been obtained and a large flow shown, a subdivision of the district is made, and thus we are able to show the exact quantity of water consumed or wasted on each street or part of the street, if necessary. The city is divided into fifty districts, as we find that large districts are not easily surveyed and are much harder to control.



# Tar-bound Macadam Roads in La Crosse County, Wisconsin

By F. H. A. Nye

West Salem, Wis.

**W**ISCONSIN State Trunk Line No. 108 leads from West Salem, La Crosse County, away from any direct railway connection through the villages of Mindoro and Burr Oak, to Melrose in Jackson County, on the north. As there are no railway facilities along this trunk line, its mission is to furnish means of transportation for the large quantities of farm products marketed from that section, or the territory tributary to it, as well as to furnish a connecting link for tourists who wish to pass from State Trunk Line No. 21 to the northwestern portions of the state.

Crosse River, built in 1921 at a cost of \$21,000, and one near Melrose about 500 feet long, built in 1922 at a cost of \$43,000. The last census of vehicles passing over this highway showed more than five hundred vehicles in a single day.

The entire highway system of La Crosse County is cared for by a State Road and Bridge Committee, consisting of five members of the County Board of Supervisors, who employ a Highway Superintendent and through him local superintendents and laborers in the different districts.

About ten miles of Trunk Line No. 108 has a completed road-bed of tar-bound mac-



TYPICAL SECTION OF TAR MACADAM ROAD, WISCONSIN STATE HIGHWAY TRUNK LINE NO. 108 IN LA CROSSE COUNTY

The distance from West Salem to Melrose, which constitutes the length of this trunk line, is 22 miles, 20 of which are in La Crosse County. The route passes through three valleys and over two lines or ridges of bluffs. In one of these ridges of bluffs is a cut made in the year 1911 which is 74 feet deep and is the second largest cut of its kind in the United States. There are two large cement bridges, one 140 feet long, near West Salem over the Lamile on the bluff portion of the highway to

adam with a width of 18 feet. The material used in its construction is crushed limestone with a binder of liquid tar. To prepare the road-bed for surfacing, its surface is first brought to the proper grade by an 8,500-pound road grader drawn by a 45-horse-power Caterpillar tractor which uses about 35 gallons of gasoline per day. The average cost of grading is about 38 cents per cubic yard, varying from \$3,000 per

\$1,500 per mile on the more level portions.

The limestone used is obtained from a quarry lying a short distance from the main line of travel on private property, and the owner is paid 25 cents per cubic yard in the quarry. A force of ten men is employed in this quarry, among them an expert with an automatic drill and a man experienced in the use of blasting powder. A line of about twenty holes is drilled into the solid surface of rock; these are packed with blasting powder and by means of an electric wire exploded at a single blast. The stone is loaded into self-dumping trucks running on a track leading to the edge of the bluff and down the incline. There is a switch half-way down the hill at which the loaded car passes the empty car it is hauling up.

The stone from the car is dumped on a platform at the foot of the hill and fed through a crusher driven by a 25-horsepower engine, after which it is elevated and screened into three different sizes, and stored in a hopper. Self-dumping trucks transport the stone to the job. The cost of the crushed limestone delivered in the hopper is \$2 per cubic yard.

After the road-bed has been graded, it is thoroughly rolled with a large steam roller, and then the coarser grade of stone is laid, leveled, rolled and given a coat of tar. The tar is bought in car-load lots of 10,000 gallons delivered at the railway station, and costs about 10½ cents per gallon.

The county has several large tanks with a capacity of two or more car-loads each, into which the tar is pumped from the cars, and these tanks are so arranged that the tar may be kept warm and liquid by means of steam passing through interior piping. A motor truck tank with a capacity of 800 gallons is used to distribute the tar. The truck tank has an oil-burning system for keeping the tar warm, so that on arrival at its destination the tank can be emptied in from five to eight minutes.

A second and third layer of limestone is laid, each with its coating of tar and with the same care as to proper leveling and rolling; and a coating of very fine stone is spread over the last coating of tar. A force of five men is used on the job, each having a specific duty, such as dumping the trucks, spreading the limestone, or putting a shoulder of dirt against the outer edge of the Tarmac pavement.

A feature of the construction work that

is much appreciated by the traveling public is that they are allowed to pass over the road without delay except for the short time when the tar is being applied, when a brief wait is necessary to allow a covering to be spread over the tar. All points of danger to traffic are protected by a railing with cedar posts and two 4- by 4-inch rails, painted white. The cost of the railing is about 41 cents per lineal foot.

The cost of that portion of State Trunk Line No. 108 which has been completed is \$14,800 per mile of 18-foot roadway. Of this, \$8,400 is for grading and limestone, \$3,530 for tar, and \$2,870 for labor and other expenses. These figures are quite low, but other lines constructed in other parts of the county under Federal supervision give practically the same costs. Common labor is paid 30 cents, truck drivers 35 cents, and overseers 40 cents per hour. Common labor is employed from April 1 to November 1 and overseers for the entire year.

#### Other County Roads

During the year 1921 a contract for several miles of tar-bound highway was completed on State Trunk Line No. 21, which passes through La Crosse County and east toward Madison and Milwaukee. This work was done under Federal supervision, and the 3½ miles of it which was built in La Crosse County does not furnish a favorable comparison. The cost of this road under the La Crosse County road and bridge supervision was \$14,800 per mile, grading 38 to 42 cents per cubic yard, and railing 41 cents per lineal foot.

Construction under contract cost \$34,038 per mile, grading \$1 per cubic yard, and railing 70 cents per lineal foot.

#### Maintenance

For the purpose of maintaining State Trunk Line No. 108 and keeping it in perfect condition, it has been divided into two districts. The ten miles of finished highway is placed under the care of a patrolman, who has one assistant. These men are provided with a patrol truck capable of moving a load of 3,000 pounds. They also have all the smaller tools necessary for repair work, and may use any larger tools from the general storehouse as needed.

This force patrols the highway during the early part of the season to see that no water stands in depressions or erodes the

highway. All weeds and small brush are cleared from the sides of the highway, thus minimizing accidents.

With such heavy traffic, an occasional depression will be found in the road-bed. A special tar binder is used in repairing these depressions. A portable kettle is taken to the point where repairs are to be made, and after the depression has been leveled up with a small grade of limestone, the heated tar is poured on, filling all crevices and leaving the surface again in perfect condition.

The cost of maintenance of this part of the trunk line is as follows: patrolman 12 months at \$90 per month, assistant patrolman 8 months at \$75 per month, or \$1,680 per year, or \$168 per mile. An added expense of about \$100 per mile should be made for materials, gasoline for the truck, and repairs in general, making a total cost of \$268 per mile per season for maintain-

ing the completed tar-bound macadam in first-rate condition.

The care and maintenance of that portion of Highway No. 108 which has not yet been surfaced is in charge of a patrolman with a team and such implements as are needed. He patrols the line, keeping all ruts smoothed, and dragging and smoothing the roadway after rainy periods. This patrolman receives \$140 per month for himself and team, making the cost per mile for maintenance about \$130.

A large portion of the north end of Highway No. 108 lies at a considerable distance from any limestone quarry so that the cost of tar-bound macadam would be much greater than for the work already completed. There is a deposit of a mixture of sand, lime and clay in this section which is proving suitable for highway construction, and a considerable amount of work is now under way with this material.

## A New Lighting System for San Mateo, California

By G. Stanley Whitehead

City Engineer, San Mateo, Calif.

CITIES, ambitious to grow, know how much the visitor is impressed by well-lighted streets, and the influence they may have toward making him a future resident.

City officials know the increasing hazard due to a constantly growing automobile traffic, and the value of improving the illumination of their streets as a means of giving greater safety to both automobile drivers and pedestrians.

Business men, realizing the value of proper street lighting in its relation to business, especially in retail districts, have been quick to demand the most improved illumination. The progressive merchant is willing to pay the larger rental of a building situated on a well-lighted street, knowing the advantage to be gained by display windows during hours closed to business.

Civic pride also plays a most important part in obtaining many of the improvements of to-day, and is demanding a greater consideration for esthetic values. The re-

sult is the passing away of the tall, unsightly wooden poles characteristic, in years past, of so many cities and towns, to give place to the more pleasing, cast-iron poles as carriers of overhead wires, and modern ornamental electroliers for lighting.

San Mateo, situated eighteen miles south of San Francisco on "The Peninsula," is a fast-growing city. For several years there was a strong sentiment in favor of a more efficient and ornamental lighting system. Since the installment of this system, a few months ago, petitions for further extensions have been made, showing that the results warranted the cost of the improvement and indicating that property owners beyond the newly lighted area are willing to pay the cost for similar lighting in their districts.

### Underground Installation

All streets within the lighted area had been paved and most of the sidewalks



**B STREET, SAN MATEO, CALIF., BEFORE THE WOODEN POLES WERE REMOVED AND AN ORNAMENTAL LIGHTING SYSTEM INSTALLED**

finished solid to the curb, thereby increasing the cost of underground installation. The advisability of using a parkway cable was considered, cutting a narrow trench in the concrete sidewalk just back of the curb and re-covering with concrete, but the usual practise of running cable through a galvanized iron conduit beneath the pavement was finally adopted.

In all such work, involving the extension of pipes underground, where streets have been paved and sidewalks finished solid to the curb, the cutting of pavements and sidewalks is an objectionable feature. This, however, was largely overcome by jacking instead of trenching. Bids were received on the unit price basis, and the specifications provided that holes could be cut in the street pavement and sidewalk only for the use of the jack, except where unforeseen conditions required trenching.

The holes for the concrete bases, on which the standards were to be erected, were dug in advance of the jacking, and the lines of conduits were then jacked from one hole to the next, reducing the cutting of pavement and sidewalk to a minimum. Although the soil was a hard yellow clay, it was found possible in extreme cases to jack a distance of nearly 300 feet. Great care, however, had to be exercised in such work to avoid puncturing other underground pipes or conduits. On semi-

residential streets, where tree lawns existed and jacking was unnecessary, the conduit was placed 12 inches below the surface and close to the back face of the curb.

### **A Three-Circuit System**

The new lighting system consists of three circuits, each circuit so wired as to control both midnight and all-night lights. The switching of the lights is accomplished by means of an automatic clock switching device at the terminal. The terminal, from which the various circuits radiate, is centrally located, and at this point the electric current is received from the Power Company.

A 1¼-inch galvanized iron conduit protects the duplex cable, having copper wire conductors of No. 8 B & S gage, and insulated to carry 750 volts. Series lamps of 250 candle-power at 6.6 amperes are used, spaced to give ample light for the present. The limited number of lights on each circuit, however, allows a surplus voltage so that certain of the lamps may be increased to 400 candle-power when it is found to be desirable.

Anticipating a future fire alarm system, additional ells were placed in the concrete bases which support the lighting units, at points where fire alarm boxes will ultimately be required.

### Placing of Standards

Lighting standards, like fashions, change from one style to another. Until a few years ago, the cluster light was considered more favorably as an ornamental unit, but the more stately single unit is now taking its place. Assuming the same candle-power, the maintenance of the single unit is much more economical and also possesses greater efficiency, consequently the single unit was adopted.

The lighting standards are of cast iron, anchored into the concrete base with three 16-inch anchor bolts, and spaced uniformly in each block. As the blocks are of varying lengths, the space between lights also varies from a maximum distance of 130 feet on the residential streets to a minimum of 100 feet on the business streets. At street intersections, a lighting standard is placed at each of the four corners, and between the intersections standards are staggered in order that a more uniform light may be obtained throughout the block.

The design of standard and the material of which it was to be made, was a matter of considerable debate. "Shall it be sheet metal, cast iron or concrete?" was the question for some time, but cast iron was adopted, recognition, however, being given the good points in the other types. The design is such as to lend itself harmoniously both to the business section and the residential section. In the base of

the pole is installed a disconnecting pot-head to automatically break the circuit in that particular electrolier should any accident occur causing the standard to be broken.

The Solux globe, of the Westinghouse Electric Company, is used as the lighting unit. The metal top or canopy, used to deflect the light, was first chosen, but the appearance of the glass top when lighted was found to be so much more attractive that a change was made to the latter. It is true that the metal top is somewhat superior to the glass as a deflector, but when lights are on, its outline cannot be seen, thus giving the lighting unit an appearance lacking in symmetry. With the glass top a very attractive and symmetrical design is obtained both day and night.

It is estimated that about 10 per cent of the lighting efficiency is lost by the use of the glass canopy, because of the light rays passing up instead of down upon the street, but as a portion of this so-called lost light is reflected against the buildings along the street, it can fairly be stated that at least a part of the 10 per cent is utilized to advantage, especially in the business district.

### Financing

A very important factor in all municipal improvements is the cost and how it shall be met. There is no way of meeting the cost that will be perfectly equitable, but the



B STREET, SAN MATEO, CALIF., AFTER THE WOODEN POLES WERE REMOVED

method of district assessment seemed most applicable to this improvement, prorating the cost over the districts benefited. The rate varied according to the cost of the work in each lighted district. Installation in the business district was more expensive than that along the residence streets, because of the greater number of lights per block, the greater cost of jacking over that of trenching, delay due to traffic, etc., and for this reason the two districts, business and residential, were outlined. The cost of the work was then figured for each district on a basis of cost per front foot.

The frontage included not only the frontage of the lighted streets but, assuming that side streets were also benefited for a distance of 150 feet, their frontage was also included, but at a variable rate, the first 50 feet being the same rate as that along the lighted streets, the second 50 feet being one-half the rate, and the last 50 feet being one-quarter the rate. Figured on this basis, which seemed to be a very just one, the maximum rate to the property owners in the business district amounted to \$1.24 per front foot and that in the residential district was 86 cents.

## What Is the Index of Stream Pollution?

SOME years ago it was freely asserted that the degree of pollution in a stream was indicated by the presence or absence of this or that species of plankton, a name applied collectively to the minute free-floating plant and animal organisms that live in practically all natural waters. It was held that some species inhabited only grossly polluted waters, others only moderately polluted waters, and still others only ocean waters. From this it was argued that the degree of pollution in a stream at any point might be inferred from the species that infested the water, in much the same way that, if a given stream contains considerable numbers of trout, the water is known to be essentially clean, for otherwise the trout would not be there, whereas, if carp be present and trout absent, the essential purity of the water is questionable and calls for investigation.

While these principles are well founded and have never been disproved, it is nevertheless true that certain other factors must be considered. Just as trout might be absent from the stream because fishermen were too active or perhaps because some tannery or sawmill dumped its waste into it, so certain microscopic organisms might be absent because of too many enemies or because they were driven out by tannery waste or mine drainage in the stream. The task of establishing a stream pollution index by a study of the plankton must allow due weight to these as to numerous other possible factors, which can be ascertained only by prolonged and careful study of the water concerned.

The United States Public Health Service,

in a bulletin just issued on the self-purification of the Ohio River, states that the next problems that await solution by sanitarians are the determination of (1) the relation between plankton and the pollution of stream water, (2) correlation between this fact and other known stream factors, and (3) the manner in which all these and other factors work together in the self-purification of waters. These problems will, of course, be difficult to work out, for the plankton are subjected to many hazards.

As plankton are carried down-stream by the floating water, they increase and decrease in accordance with changes in the depth, velocity and turbidity of the stream, changes in the temperature and amount of sunlight and organic matter brought by natural drainage and city sewage, and changes that result from the increase and decrease of other forms of plankton that form their chief food. The acid waters of a tributary mean death to many of the plankton in the main stream. The sewage from a great city means a huge increase in food and in those plankton that thrive on grossly polluted waters, and a decrease in those that are suited to cleaner waters. Farther down-stream, after the sewage has mostly been dissolved, the stronger types of plankton eat the weaker and are themselves eaten by those that are still stronger. Sluggish water, due to riffles, bars and islands, give most plankton a chance to multiply. Flood waters interfere with their feeding and bury them under sand and mud. Cold lessens their increase, and warm weather augments it; turbidity kills and sunlight helps.

# Garbage Disposal in St. Louis

An Account of the Vast Improvement Between 1839 and 1923, with Description of Present Incinerator

By C. S. Butts

Engineer, Department of Public Utilities, St. Louis

**T**HE first ordinance in St. Louis pertaining to the removal of garbage, No. 564, approved December 17, 1839, reads as follows:

"It shall be the duty of the City Marshal at noon on the first Monday in the months of January and July of each year at Centre Market Place to let out at auction to the lowest and best bidder (each ward separately) for the cleaning of all paved streets and alleys and the removal of kitchen slops and dead animals and every description of nuisance, except when found upon unpaved streets or private property. Nuisances upon unpaved streets and public highways within the city to be removed by day labor."

Forty-seven additional ordinances regarding the question of collection and disposal of garbage by various methods, and requiring different types of wagons and disposal systems, bring the question up to ordinance 31,494, February 8, 1922, which authorized the Board of Public Service to advertise for bids for two incinerator plants and appropriated \$140,000 for their construction.

Contract 11,932, dated May 19, 1922, let the contract to the Chicago Incinerator Company for the construction of an incinerating plant complete, at the foot of Chouteau Avenue, for the sum of \$69,812. Work commenced on June 14, 1922, and was finished November 1, 1922.

## Collection

During 1922-1923, the garbage collected amounted to 68,354 tons at a cost of \$3.55 per ton. All of the garbage at present, with the exception of 80 tons per day hauled to the incinerator plant, is being hauled, weighed and dumped by the contractors onto barges at the foot of Chouteau Avenue. There are some 130 wagons in service during the summer, hauling garbage to this point, which, according to the 1922-1923 reports, costs \$3.55 for hauling and \$2.10 for disposal, making \$5.65 per ton. The present wagons weigh about 2,500 pounds and haul about a ton and a



THE MUNICIPAL GARBAGE AND REFUSE INCINERATOR BUILT IN 1922 IN ST. LOUIS, SHOWING RAMP FOR DELIVERY

quarter of garbage, making a total weight of load of 5,000 lbs., or  $2\frac{1}{2}$  tons.

The hauling of garbage by motor trucks seems to be the solution of the collection problem. Experiments were made with trucks and trailers. This system has not eliminated the mule-driven wagon. A system should be devised whereby collection can be made by tractor and trailer, and the wagons and mules eliminated.

The construction of five incinerators has been recommended, three of 100 tons capacity on the river, and two of 150 tons capacity in the central west end. This would shorten the haul, thus greatly reducing the cost of collection during the sum-



mer, when about 400 tons per day are collected. The plants would have to be operated 24 hours per day, but during the winter months, when 150 tons are collected, they would have to be operated only 8 hours each day.

#### **Wrapping of Garbage Recommended**

It has been recommended that when the incinerator plants are all complete and in operation an ordinance should be enacted requiring all garbage to be drained and wrapped in paper before being deposited in the garbage can. This would increase the efficiency of the incinerator plant and eliminate the hauling of sloppy garbage through the streets. An ordinance requiring all hotels to put in their own incinerator plants in their own buildings, and the same for large apartments, is also suggested.

An examination of the 48 ordinances which were passed from 1839 to 1923 shows that practically all methods of garbage collection and disposal have been tried out. From 1839 till 1910 the garbage was dumped into the Mississippi River, but from that time until the present it has been difficult to find a place to dispose of it, as the Government stopped the authorities from throwing garbage into the river.

#### **New 80-Ton Incinerator**

The 80-ton incinerator plant at the foot of Chouteau Avenue is built up on a reinforced precast concrete pile foundation, supporting a building measuring 38 by 56 feet made of brick with a steel truss roof. The operating floor contains a small office 8 x 12 feet, and a wash and toilet room, 6 x 12 feet, with a shower. Three furnaces, including the combustion chamber, each 14 feet, 9 inches wide, 32 feet long and 11 feet 6 inches high, are built on the operating floor. Two fans, one of 10 horse-power and one of 20 horse-power, are placed on the floor at the north end of the furnaces for furnishing the necessary forced draft.

The tipping floor onto which wagons are driven to be emptied is built 21 feet above the operating floor. There are three holes 3 feet square and three holes 1 foot 6 inches by 4 feet through which the garbage is dumped into the storage bin, which runs the entire length of the furnaces. The bin is triangular in shape, 9 feet 6 inches deep, with a capacity of 60 tons of garbage. Another hole 5 feet 6½ inches by 4 feet 2

inches was left directly over the combustion chamber for incinerating dead animals. There are also two coal holes, 1 foot 6 inches and 2 feet each in diameter for dumping coal into chutes, which empty on the operating floor in front of the furnaces, for use when necessary.

The clinker pit is situated beneath the furnaces and served by two tracks of 24-inch gage with dump-cars which receive the clinkers from the furnaces and dust from the combustion chamber. The space occupied by the pits is 11 feet 6 inches wide, 32 feet long and 7 feet high. The tracks lead out of the south end of the building and thence to the river bank.

The trestle approach to the plant leads out of double doors on the tipping floor to the south. A 125-foot radial brick chimney 5 feet in diameter is built upon twenty-five 25-foot precast piles and a reinforced concrete slab 17 feet square by 4 feet thick. The chimney is lined with 9-inch fire brick for 50 feet, and with 4½-inch brick for 55 feet, making a total of 105 feet of lining.

#### **Operation of the Incinerating Plant**

The garbage is hauled up the incline, passing over the scale, where it is weighed, and thence into the south end of the building onto the tipping floor, where it is dumped through holes in the floor to a large storage bin. These openings on the east side of the bin have steel doors operated by pulleys and weights. Immediately opposite each door is a hole 2 feet 1-inch in diameter, closed by a cone-shaped weight, which is also operated by pulleys. Outside of the hole are other steel doors, making a closed air lock. The garbage is raked from the storage bin into the 2-foot 1-inch openings at the top of the furnace and thence diverted onto a drying arch, from which it is raked onto the side grates, where it is further dried, and thence into the fire-box of the furnace.

The side grates are 5 feet long by 3 feet 6 inches wide, and the fire-box proper is 2 feet 3 inches wide by 1 foot 3 inches deep and 5 feet long, making a total of about 60 square feet of grate surface. After the garbage is burned, the ashes and clinkers are drawn into an ash-pit and when cooled off are loaded into small cars in the basement of the plant and dumped into the river.

The furnaces are operated by forced

draft, the air to supply the fans being taken out of each of the three ash-bins over the hot clinkers, into 20-inch vitrified pipe, then into an air chamber 3 x 6 feet, then through the fans into two galvanized air-tight ducts, under the furnaces. Air is also taken out of the garbage bin through a 20-inch galvanized pipe through the fans and into the ducts.

Under each furnace and directly under the grates are three holes 12 inches in diameter in the ducts. Two of these holes supply air to the side grates and one to the fire-box, the supply of air being regulated by dampers over each hole. The dampers are located in the air pipes proper, and the fans are so connected that they can draw from the ash-pits, combustion chambers and garbage bins, or separately, and can be operated singly or together. The gases from the furnaces pass through a large combustion chamber where a temperature of about 1,200 degrees is maintained. Dead animals can be incinerated in this chamber. The chamber is connected to the 125-foot chimney, and it has been found that all gases and bad odors disappear before reaching the top of the chimney.

In connection with the operation of the plant a 280-gallon tank is provided for hot water, which is supplied through 2-inch pipe placed in the combustion chamber. This hot water furnishes two radiators in the office and toilet rooms and also furnishes hot water on the tipping floor and the firing floor for cleaning purposes.

The building was constructed by local contractors, and the furnaces were con-

structed by the Burke Furnace Company, of Chicago. The plant is being operated by the Department of Streets and Sewers, Clinton H. Fiske, Director.

The guarantee made by the Chicago Incinerator Company for this plant was that it would incinerate 80 tons of garbage in 24 hours without any nuisance or bad odors; that it would use not over 8 kilowatts of electricity for the forced draft fans per ton of garbage; that it would not use more than 6 per cent, or 120 pounds, of coal per ton of garbage. Tests show that this capacity has been raised to at least 100 tons per 24 hours and that it requires less than 1 kilowatt of electricity for each ton of garbage and less than 100 pounds of coal per ton of garbage. The plant is being operated 24 hours a day in three 8-hour shifts and requires three men on the firing floor, three on the charging floor, and a foreman for each 8-hour shift. It is incinerating garbage without any offensive odors or smoke for about \$1 a ton, showing a saving of \$1.10 a ton over the contract for dumping it onto barges at \$2.10. It is the intention of the city to erect other plants as soon as possible, thus eliminating the long haul to this one plant and to further reduce the cost of collection. The plant has been in operation for over six months and as yet no complaint has been made against this method of disposal of garbage. The Department believes that after 84 years of garbage disposal troubles the city has found the proper solution of its garbage disposal problem in the incineration of the putrescible wastes of the city.

## An Early Water System

Wagon and Barrels Made the Entire Water System of Joplin Many Years Ago

THE first water system in Joplin, Mo., was the old-fashioned tank water wagon operated by S. E. Eells, who lived in East Joplin. He furnished the city supply from a deep well at his home. Families who had not built cisterns when they erected their mining cabins, bought water and kept it in barrels.

The water wagon traveled over its route each day. The housewife who needed water put a white rag on a stick and hung

it above her water barrel. Water bills were run by the month or week, and when the water hauler left either a barrel or a half-barrel of water, he made a mark on the side of the barrel with a pencil. By counting the marks and figuring it at 10 cents a barrel, the patron of the water man computed his monthly bill. When the town began to assume larger proportions, water was also hauled from the mining pumps.

—Joplin Globe.



EXTERIOR AND INTERIOR VIEWS OF THE KANSAS CITY MUNICIPAL ELECTRIC PLANT

# Accounting Work of Municipal Central Stations Simplified

By L. M. Barnard

Formerly Auditor, Water Department, Kansas City, Mo.

**T**HE accounting and statistical records that are kept at the municipal electric light plant of Kansas City, Mo., involve a great amount of figuring, the handling of which would constitute quite a cost problem in itself were it not for the use of calculating machines. Each one of the following classes of work, which are pretty sure to be found in any power-station, requires a considerable amount of figuring:

- Pay-roll
- Pay-roll distribution
- Inventory
- Stores accounting and material distribution
- Monthly report of operating results
- Monthly comparative statements of costs per net kw. hr.
- Condensed statement of profit and loss

## Stores Accounting

Stores accounting is a branch of work to which the calculating machine is admirably adapted, and is of great importance in all power-company work. The work involves the computing of land and values and requires a considerable volume of calculations incident to determining the unit value and disbursement of innumerable articles, such as nuts, bolts, fuses, lamp cord, shovels, cylinder oil, packing, caustic soda and all other supplies.

## Boiler-Room Records

In every power-plant, especially those that are entirely steam-driven, the boiler-room records require a great deal of complicated figuring, which can be handled on an up-to-date calculating machine with great ease and assured accuracy. Such items as appear in the accompanying list are being handled on a Monroe calculating machine in the Kansas City plant with a very marked saving of time:

- Factor of evaporation
- Evaporation per pound of dry fuel from and at 212° F.
- Average monthly steam consumption per kw. hr.
- Average monthly fuel consumption per kw. hr.
- Average load factor per cent
- Average daily turbine and engine hours
- Station factor per cent
- Average kw. hr. per boiler horse-power hour in service
- Fuel used under boilers for electrical purposes
- Fuel used under boilers for all purposes
- Per cent of total boiler fuel used for banking
- Per cent of refuse to total boiler fuel
- Average analysis of fuel burned: moisture per cent, volatile—combustible per cent, fixed carbon per cent, ash per cent, sulphur per cent, B.T.U. per pound of fuel—air-dried, superficial moisture per cent
- Average temperature of feed water
- Average superheat of steam
- Average steam pressure

Computing these items and many others

MUNICIPAL ELECTRIC LIGHT DEPARTMENT					EXHIBIT B	
CONDENSED STATEMENT OF PROFIT AND LOSS						
MONTH OF JANUARY, 1923						
	Labor & Wages	Material	Direct Charge	Total Expense		Per Cent of Total Income
<b>Gross Operating Income</b>						
Lighting Rates				49,753.01		.474042
Power Rates				44,486.50		.423955
400 C.P. Lights				1,162.32		.005599
80 C.P. Lights				1,484.80		.014149
250 C.P. Lights				147.27		.001401
Ornamental Lights				2,931.75		.027935
Steam Sales				722.17		.006879
Electric Const. Permits				270.80		.002584
<b>Total Gross Income from Operation</b>					101,969.22	.971333
<b>Operating Expenses</b>						
Generating Plant	9,876.99	34,092.28	127.18	44,096.45		.420135
Distribution System	540.40	210.25	57.39	1,210.04		.011605
Street Lighting System	566.13	823.43	27.13	1,416.69		.013787
Service Department	4,015.56	294.58	56.37	4,366.51		.041607
Store Room	1,568.09	59.52	62.50	1,690.11		.016102
Administrative & General	2,026.67	471.65	1,404.13	4,522.45		.042626
<b>Total Operating Expenses</b>	19,504.24	35,751.71	1,834.00	57,390.95	59,390.85	.565809
<b>Maintenance</b>						
Generating Plant	2,508.38	1,440.91	31.11	3,980.40		.037997
Distribution System	2,349.51	(182.76)	16.62	2,183.37		.020799
Street Lighting System	137.34	442.91	3.33	783.58		.007460
Service Department	266.63	156.60	10.27	433.50		.004135
Store Room			.60	.60		.000059
Administrative & General	9.63	6.33	1.12	17.08		.000162
Allowance for Maintenance			600.00	600.00		.005717
<b>Total Maintenance</b>	5,473.49	1,871.07	663.05	8,005.61	8,005.61	.076278
<b>Allowance for Depreciation</b>					8,651.37	.082424
<b>Amortization - Intangible Assets</b>					151.51	.001433
<b>Total Operating Expenses</b>					76,199.34	.726039
<b>Net Income from Operation</b>					25,769.88	.245294
<b>Other Operating Income</b>						
Lamp Sales				(8.01)		(.000743)
Fines & Penalties				335.97		.003201
Store & Appliance Sales				20.73		.000200
Private Service Sales				330.88		.003154
<b>Total Other Operating Income</b>					609.57	.005812
<b>Non Operating Income</b>						
Miscellaneous Income				207.96		.001982
Premiums on Bonds				2,179.92		.020875
<b>Total Non Operating Income</b>					2,387.88	.022857
<b>Total Additions to Net Operating Income</b>					2,387.88	.022857
<b>Net Income</b>					28,157.76	.268151
<b>Reductions from Net Income</b>						
Interest & Commission on Bonds				7,343.99		.069972
Allowance for Bad Debts				138.25		.001314
<b>Total Deductions from Net Income</b>					7,482.24	.071286
<b>Net Income for January, 1923</b>					20,675.52	.196865

like them involves additions of very large amounts, and divisions for the averages and percentages which must be accurate to four or five places. Moreover, in order to obtain the required data for many of the items, complicated formulas must be solved.

Take, for instance, the following to ascertain the evaporation per pound of dry fuel from and at 212 degrees Fahrenheit:

Water evaporated by boilers  $\times$  factor of evaporation  
 (Fuel used — banking fuel)  $\times$  (1.00 — superficial moisture)



OFFICE OF MUNICIPAL ELECTRIC PLANT AT KANSAS CITY SHOWING CALCULATING MACHINE EQUIPMENT

It will be noticed that the solution of this formula requires subtraction, division and multiplication. For checking flow meters, extreme accuracy is necessary, as results must often be carried out to as many as ten decimal places.

#### Profit and Loss Showing Percentages

The condensed statement of profit and loss

is reproduced above. In the extreme right-hand column are percentages carried out to six places. This statement and others used by the Kansas City Municipal Plant follow in the main the standard accounting plan of the National Electric Light Association, which is used by the majority of power companies and departments in the United States.

## Types of Meter Rates

A Classification Prepared by the Department of Water-Supply, Detroit, Mich., of Value to Water-Works Officials

THE forms of meter rates now in general use in American cities may be classified as follows:

*Uniform Minimum Rate.*—A minimum rate is an amount that is collected, no matter how small the consumption may be. This is the plan now used in Detroit, where the charge is \$1 per quarter. This charge entitles the user to 1,000 cubic feet, but the charge is made for any quantity under that amount. The minimum rate charge is used in the majority of American cities and may be used in connection with a uniform rate or any one form of sliding or step rate.

*Service Charge.*—This is a charge made in addition to a charge for water. It increases with the size of the meter or service connection. Its use in American cities is increasing. This is the system that has been recommended for adoption by the New England Water Works Association.

*Graduated Minimum Rate.*—In this form of rate the minimum charge increases with the size of the meter, as in Philadelphia, where the minimum charge for a  $\frac{3}{4}$ -inch meter is \$12 per year, and for a 6-inch meter \$1,150 per year.

*Sliding Scale.*—This scale may be used with or without the minimum rate or service charge and includes all cases where a varying rate is charged according to the quantity of water used. This plan, with a minimum charge, is now used in Detroit

and in the majority of American cities. The type of sliding scale generally used provides that the water used to a certain limit is charged at a certain rate and additional quantities are charged a lower rate, but the higher charge on the first quantity remains a part of the bill.

*Other Forms of Rate.*—Several other forms of rates have been used to a limited extent.

The uniform rate is the rate in which the cost of water, either per gallon or per cubic foot, is the same to the small consumer as to the large consumer and is the same whether the quantity furnished is little or much. This method is much used.

The jump scale provides that a certain quantity of water is charged for at a certain price; beyond that limit and inside another limit a lower price is named. By this method it is possible to get a lower bill by drawing an additional quantity of water; as, for instance, if 1,000 cubic feet were charged for under this system at the rate of \$1 and all amounts beyond that at the rate of 50 cents per 1,000 cubic feet, the consumer, by wasting his water so he exceeded the 1,000 cubic feet limit, say 1,100 cubic feet, would be billed at 50 cents per thousand.

With the logarithmic scale, the amount of water bill is found by multiplying a quantity of water, raised to some power less than 1 by a constant.

## Cities Pay for County Roads

A very large share of the money obtained to improve the highways throughout the state of Minnesota in accordance with the terms of the constitutional amendment comes from the automobile owners of Minneapolis and St. Paul, says the *Minneapolis Tribune*. It is a pleasant and significant thing to

chronicle that very few complaints come from the motorists of the two big cities about the taxes they are required to pay into the good roads fund, although they are well aware that little of this money, if any, is used for direct, close-range benefit of the cities. Urban taxpayers take care of their own streets and boulevards in the usual way.

# Chamber of Commerce Activities in Public Affairs

## *Financing the Transformation of a Narrow, Dead-Line Street into a Main Automobile Thoroughfare*

CLEVELAND, OHIO.—On August 5 there became effective in Cleveland an ordinance for the widening of Carnegie Avenue from East 22d Street to East 55th Street, from its present total width of 50 feet to a width of 86 feet. The work which led up to the adoption of this ordinance is an interesting story, which is told in detail in a report of the Committee on City Plan of the Cleveland Chamber of Commerce, approved by the Board of Directors on May 31 last. Here is the story in brief:

The City Council of Cleveland having declared its intention of repaving a section of Carnegie Avenue at its present roadway width of 28 feet, a holder of property in this section called upon several of his neighbors and learned that they, like he, believed it to be to the best interests of the property as well as of the city that the street should be widened before it was paved. He called upon Mr. Newton D. Baker, at that time president of the Chamber of Commerce, and upon his advice and with some assistance of the Chamber, a meeting of about sixty of the property holders in the section was held on June 14, 1922, and the Carnegie Avenue Association formed.

Since that time more property owners have joined the association until, at present, of the 169 properties listed in this district, 100 are represented in the member-

ship—6,854 front feet out of a total of 11,804 feet.

Meetings of these property holders and of the trustees of the association, and the conferences with city officials, resulted in a plan for widening Carnegie Avenue from East 55th Street to East 22nd Street, from 50 feet (28-foot roadway and 11-foot sidewalks) to 86 feet (56-foot roadway and 15-foot sidewalks).

To this plan the City Plan Commission assented. The city, however, owing to its financial situation, found itself unable to carry forward the improvement. Thereupon the Carnegie Avenue Association, by means of a voluntary assessment of 50 cents per foot on the member property owners and an advance from some of the trustees of the association, raised the funds to pay for an appraisal of the land and building damages which would accrue to each piece of prop-

erty in such widening and straightening of the avenue in this section. This appraisal was made, and showed the following totals:

Appraised damages to land.....	\$284,120.43
Appraised damages to buildings.....	535,870.00
	<hr/>
	\$819,990.43

As a margin of safety, 20 per cent additional was added, making a total of approximately \$984,000.

In addition to this total of \$984,000, Robert Hoffman, City Engineer, has estimated that the cost of paving the new portion of the street, repaving the present portion, laying sidewalks, moving posts, etc., will cost between \$65 and \$70 a foot—approx-

## Cooperation with District Organizations

It is the opinion of the City Plan Committee of the Cleveland Chamber of Commerce that the method here described is a sound, business-like way in which to effect city improvements. It regards associations of property holders in special districts as one of the influential factors in constructive city planning. It is of the opinion, also, that these organizations which have a civic purpose, as well as one of private profit, should receive, whenever possible, not only the moral support of the Chamber of Commerce, but tangible help in whatever form seems suitable to their needs.

mately, for the 11,000 feet, \$700,000.

The total improvement, therefore, will cost approximately \$1,700,000.

Contrary to the practise in many states, the constitution of Ohio permits the assessment of only 50 per cent of the cost of street openings and widenings against the benefited property.

By agreement among themselves and after conference with city officials concerned with street improvements, the property holders have proposed to bear this 50 per cent of land and building damages, as well as the usual 98 per cent of the cost of the paving of the new portion of the street and the 50 per cent of the repaving.

In the entire history of street extensions within the limits of Cleveland, the Chamber of Commerce committee found no record of street widening where abutting benefiting property holders have paid for street openings or widenings except as all other citizens paid—through the general tax fund. Certainly there is no other case in which the proposal to pay, and that to the full extent permitted by the Ohio state constitution, has come from the property holders themselves.

The city officials concerned with street improvements asked that the Carnegie Avenue Association secure options on the property which the city must take, on the basis of the appraisals which the Association had made. It was conceded that not all of the property owners would consent to give options, especially those owning corner lots or lots of such depth that a loss of 36 feet would seriously damage the lot for business building use. But, probably, 50 per cent or 60 per cent of the property could be optioned.

The Carnegie Avenue Association was not able to carry this expense. Its regularly raised funds, as well as loans by several of its trustees, had been exhausted by the cost of having the land and building damage appraisals made. In this situation the Cleveland Chamber of Commerce offered its assistance in securing these options. It was, in the opinion of the committee, practically certain that by changing an unpaved, dead-end road into a main automobile thoroughfare, the owners of property abutting the improvement would benefit more than the 50 per cent of the cost which they proposed to pay. But it was equally certain that the whole city would benefit. The large increase in property values would re-

sult in an increase in tax revenues.

Under this arrangement options were obtained entirely beyond the expectations of the city authorities, the Carnegie Avenue Association or the Chamber of Commerce committee. About 760 feet of the total frontage affected is occupied by a public school and the Convent of the Good Shepherd. Neither of these institutions, because of their charters, is able to give options. The governing authorities of both, however, are favorable to the widening and will carry out negotiations with the city on the basis of the damages assessed against them. Disregarding this 760 feet, the options cover about 50 per cent of the front footage, and more than 50 per cent of its value.

On the basis of the recently recorded sales, it is estimated that property values on this one mile of street have already increased \$3,000,000. This increased valuation will produce almost immediately at the present tax rate, for all purposes, approximately \$75,000 a year in tax revenues. This amount, of course, is returned to the general fund and spread over the entire expenditure of city, county and state. Nevertheless, if the cost of the whole improvement is \$1,700,000, and the city's share of this is approximately \$850,000, this cost to the city treasury will be amortized several years prior to the maturity of bonds issued against the improvement by the increased tax revenue which the city will receive from the increased valuation.

CHARLOTTE RUMBOLD,

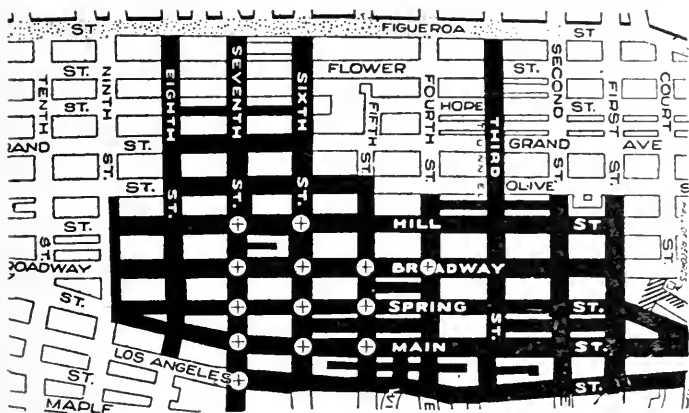
Secretary, City Plan Committee, The Cleveland Chamber of Commerce;  
Secretary, Carnegie Avenue Association;  
Executive Secretary, The Euclid Avenue Association.

### ***New Paving for Newport***

NEWPORT, R. I.—A much-needed bond issue of \$375,000 proposed by the Representative Council and referred to the voters was taken up by the Chamber of Commerce and a campaign of education was put on. Despite the opposition of both daily papers and the politicians, the proposition carried by a 3 to 1 vote, largely because the people were told the truth about the need for the new main streets. A Citizens' Committee was most helpful in formulating public opinion. It is still on the job to see that the city gets the proper kind of streets, designed by a competent engineer and laid according to specifications.

W. C. CAMPBELL,  
Secretary, Newport Chamber of Commerce.





The congested district of Los Angeles is shown in the black striped area. In this district parking is prohibited between the hours of 4 and 6:15 p. m., otherwise 45 minute limit. Corners where left hand turns are prohibited are shown with the cross.

### Traffic Education to Supplement Traffic Legislation

LOS ANGELES, CALIF.—Through an article in the *Automotive Review* of the Pacific Southwest, John D. Maxfield, Manager of the Department of Safety and Fire Prevention of the Los Angeles Chamber of Commerce, has been calling the attention of automobile users to the fact that laws alone will not suffice for the solution of traffic problems. The importance of co-operation, common courtesy and common sense are especially stressed. To quote in part:

"Cutting corners is a flagrant cause of accidents at intersections. There can be no reason for this other than the saving of a few seconds of time, and the risk is much too great to compensate for the slight saving which may be effected if you 'get by' with it.

"Frequent and glaring examples of discourtesy in the business district are seen every day, and these contribute in no small measure toward both congestion and accidents. Among these are 'cutting in' on a line of cars at the 'keep to the right' signs, rather than remain in line and take your proper 'turn.' One would not think of doing this in a line at a theater ticket window or at a cafeteria. Why do it on the street?

"Also a great many drive down the center of the street, thus preventing others from passing them

without passing beyond the center of the street. The law provides that vehicles shall keep to the right, enabling machines following to pass to the left. Failure to do this holds others back, since it is both unlawful and dangerous for them to attempt to pass to the right."

FRANK WIGGINS,  
Secretary, Los Angeles Chamber of Commerce.

### A Well-Equipped Tourist Camp Community House

FORT COLLINS, COLO.—

The accompanying picture shows a community house which was opened at our Tourist Camp Grounds at the beginning of the present summer season. The financing of this building at a cost of \$7,500 is one of the recent activities of the Fort Collins Chamber of Commerce. The building has a kitchen with gas stoves for cooking, a living room, and a laundry with electric-washing machine. It is regarded as an exceptionally complete building for its purpose, and has been highly praised.

J. W. RAINEY,  
Secretary-Manager, Fort Collins Chamber of Commerce.



THIS COMMUNITY HOUSE ADDS GREATLY TO THE POPULARITY OF FORT COLLINS' TOURIST CAMP GROUNDS

# Convert Water Waste Into Profit

By C. C. Behney

**T**O-DAY every progressive business keeps a vigilant watch on all channels of waste, and eliminates or reduces that waste to a minimum in order to increase profits. Competition demands this. With water-works the element of competition has not been so keen a factor, and perhaps for that reason the subject has not received the same watchful and careful attention as has waste in more competitive enterprises. It is a well-known fact that the water consumption of many of our cities is abnormally high, and excessive beyond actual needs. Every city and every water-works should recognize the importance of curtailing the waste of water, and that by so doing they can effect large savings in dollars and cents.

The possibilities of the conservation of water are greater than is commonly believed. The conservation of the water-supply in its final analysis means the stopping of waste. No superintendent would dream of restricting the legitimate use of water, nor is this necessary. But when one considers that in many instances 15 to 50 per cent of the total supply or pumpage of water is wasted (and by this we mean waste that can be eliminated), it is evident that the element of waste is a very important item and amounts to many billions of gallons per day throughout the land. The vast savings in water waste that could be effected, were this fact recognized and acted upon, would represent a handsome and a profitable sum to many a water-works company or city.

The sources of water waste are:

1. Underground leakage on mains and service lines, such as cracked pipes, blown joints, electrolytic action on pipes, and corroded or broken service lines
2. Leakage of fixtures
3. Wanton waste of water by consumers
4. Loss due to underregistration of meters

These sources of waste are all well known to every water-works superintendent. How is he to know, however, the extent and location of the waste and amount of leakage, and whether it is underground, fixture leakage, or otherwise? Obviously, after a full

knowledge of the facts are obtained, one can apply the necessary correction. A waste-water survey conducted by a competent person or organization discloses these facts in a relatively short time, and affords the means for correcting much of the waste immediately.

The results accomplished by water-waste surveys at Lexington, Ky., and at Hagerstown, Md., which were conducted by the Simplex Valve and Meter Company of Philadelphia, illustrate these facts and show that much waste can be eliminated by this means. These cities are not cited to emphasize the extent of their waste, but are chosen more particularly because their consumption prior to the water-waste surveys was less than that of many cities which are classed as having a low consumption.

In Hagerstown, Md., where approximately 75 per cent of the consumers are metered, and the population was 29,000, the total daily consumption prior to the water-waste survey was 4,100,000 gallons, or 141 gallons per day per capita. The water-waste survey disclosed the following leakage, not to mention underregistration of some meters of the larger sizes, where the revenue was forthwith increased:

11 leaks on mains, aggregating.....	299,000	g.p.d.
29 leaks on services, between main and curb .....	286,000	g.p.d.
33 leaks on services, between curb and building .....	161,000	g.p.d.

Total leakage located ..... 746,000 g.p.d.

Upon completion of the water-waste survey, at which time 605,000 g.p.d. of the above leakage had already been repaired, the consumption was as follows:

Industrial consumption.....	2,400,000 g.p.d., or 82¾ g.p.d. per capita
Domestic consumption...	1,100,000 g.p.d., or 38 g.p.d. per capita
Total supply .....	3,500,000 g.p.d., or 120¾ g.p.d. per capita

At Lexington, Ky., where the system is 100 per cent metered, population 45,000, the total supply prior to the water-waste survey was slightly less than 100 gallons per day per capita. The underground leakage disclosed by the survey, which was immediately repaired, amounted to 700,000 gallons per day. After the completion of

the water-waste survey, the consumption was reduced to 82 gallons per day per capita, of which about 42 gallons per capita was industrial consumption, leaving about 40 gallons per capita for domestic consumption, including water for sewer flushing, street sprinkling, etc.

There is an erroneous popular opinion that such leaks will show up on the surface. None of the leaks mentioned showed any visible signs on the surface. Many of them were from 25,000 to 50,000 gallons per day and some were in excess of 100,000 gallons per day.

The fact that the per capita consumption of one city is less than that of its neighbors is no criterion upon which to base conclusions concerning its possibility for the conservation of water. A better

method is to determine the difference between the total supply and the total metered consumption. If the system is not 100 per cent metered, the total industrial consumption can be subtracted from the total supply, and thus a fair idea can be obtained of the remainder of the consumption, which would be the domestic, including the waste.

The progressive water-works man realizes that water wasted is money lost; that it is an economic waste that is a benefit to no one. But mere realization of these facts produces no results. It is action that "brings home the bacon."

Some engineers have contended that the domestic consumption of the average city need not exceed 40 or 50 gallons per capita, and the results obtained in the above-mentioned cities bear out this opinion.

## Ways in Which Industrial Wastes May Affect Water-Supplies

THE Committee on Industrial Wastes of the Standardization Council, American Water Works Association, in its report presented at the Annual Convention of the Association in Detroit, states that certain industrial wastes may have a beneficial effect on water used for water-supply, as, for example, the disinfecting action of bleach wastes on a stream contaminated by sewage. Combinations of certain wastes may have a clarifying effect on turbid waters—for instance, acid iron wastes with alkaline wastes. Other combinations of wastes may tend to reduce hardness, as the lime and soda ash waste from certain processes of cotton bleaching. Such wastes or combinations of wastes as have beneficial effects are exceptional, and in these cases the objectionable effects often outweigh the beneficial effects.

Industrial wastes may injure water-supplies in various ways, depending upon the character of the substances in the wastes discharged. These substances may be classified as follows:

1. Suspended or colloidal mineral matters which increase turbidity and add to the difficulty and expense of coagulation or of filtration, such as coal, and ore-washing wastes.
2. Dissolved mineral matter increasing the hardness or otherwise impairing the quality of the water and increasing the expense of water purification, like acid mine drainage and the salt water from oil wells.
3. Vegetable and animal organic matters in solution and in suspension which increase the color, turbidity, suspended matter and bacteria content, thereby increasing the difficulty and expense of water purification or overloading the purification plant; examples of these are sugar refinery wastes and tannery wastes.
4. Taste- and odor-producing substances, either organic or mineral in nature, such as phenols in the wastes from gas and coke manufacturing, and sulphite liquors from paper pulp mills.
5. Substances, either organic or mineral, tending to stimulate growths and thereby increase difficulty and expense of treatment, as, for example, organic sulphur compounds in wool-scouring wastes, and mineralized nitrogen from oxidation of organic wastes of various kinds.
6. Harmful bacteria, like the anthrax germ in tannery wastes.
7. Poisons, such as cyanide from the cyanide process of gold extraction.

## America's Road System a Coming World Wonder

Every cent spent for good roads is money well invested. Commercial intercourse is stimulated, cities are brought closer to one another and new arteries of traffic are opened which, half a century back, were filled by the railroad alone. It seems only a question of time before America's highway system will be one of the wonders of the world.—*Crookston, Minn., Times.*

# Getting Ready for a Local Observance of Fire Prevention Week

By Percy Bugbee

Executive Assistant, National Fire Protection Association

TEN years ago a resolution was introduced at the annual meeting of the Fire Marshals' Association recommending that October 9, the anniversary of the Chicago fire, be generally observed throughout the country by proclamation of the governors as Fire Prevention Day. The resolution was adopted, and practically all the governors of the western states issued proclamations.

The success of this first observance led to a spasmodic but continually increasing interest throughout the country in ensuing years. In August, 1916, a joint committee of the National Fire Protection Association and the National Safety Council was formed for the purpose of sponsoring and developing the observance on October 9 of that year, of a combined Fire and Accident Prevention Day. The effort met with considerable success, and similar campaigns were carried out in 1917, 1918, and 1919. The observance received national recognition through President Wilson's proclamation setting aside October 9, 1920, as Fire Prevention Day. The simultaneous release of a Royal proclamation in Canada made the observance international in scope. Under this impetus, the 1920 campaign was an assured success, and much helpful and constructive publicity was given to the movement.

Although an official Fire Prevention Day was again designated in 1921, the growth of the movement led to the expansion of the campaign in many cities to a week. Accordingly, it was decided by the National Fire Protection Association at its annual meeting in 1922 to devote the week of October 2 to 9, 1922, to fire prevention observances. This week was observed very successfully throughout the United

States and Canada, and tremendous impetus was given the fire prevention movement. The coming Fire Prevention Week, of October 7 to 13, is expected to surpass all previous efforts in educating the public in carefulness with fire.

There have been many effective methods developed in previous campaigns. In the thought that a brief description of these various ways and means of bringing fire prevention before the public may be of assistance to municipal officials and committees planning local campaigns, the following data have been compiled from reports of past activities and are presented in alphabetical order:

**OCTOBER 7-13** are the dates of Fire Prevention Week for 1923. This article contains practical suggestions for municipal officials and all cooperative organizations and newspapers.

*Advertisements.*—Fire Prevention Week offers an excellent opportunity for the advertising of fire-extinguishing appliances, building materials, fire insurance companies and agents, etc., in local papers and in national magazines. The thoughts of the public will be turned to fire prevention during the week, and a favorable and receptive attitude toward such advertising will be created. The news-

papers should run special pages or supplements on fire prevention activities, in which advertisements can be grouped.

*Banquets and Luncheons.*—During some part of the week it has often proved effective to hold a public banquet or luncheon, to which the prominent officials and citizens of the town are invited. The speakers should be chosen carefully and the fire prevention problems of the town discussed by them. Such gatherings tend to create a spirit of good-will and cooperation which is most helpful to a campaign.

If weekly luncheons of the various civic clubs are held, a fire prevention speaker should be provided at the luncheon during Fire Prevention Week.

*Bill-Boards.*—In the larger cities, bill-boards, placed at the main routes of travel to the city, calling the attention of the traveling public to the Fire Prevention Week observance, are excellent publicity.

*Boy Scouts.*—The Boy Scouts can be used

in various ways in the campaign. They should share in the clean-up and inspection work, help distribute posters, and take part in the parade. In some cities, troops are organized as Boy Scout Firemen. These troops are especially fitted to share in the work and if possible should hold drills and other exercises during the week. The Scout merit badge for firemanship should be given prominence at this time.\*

**Candy Specials.**—Confectionery dealers in many cities have put out a Fire Prevention Week special. The box should bear the fire prevention shield or other appropriate design or wording. An attractive window display, including fire prevention posters, should be arranged.

**Cartoons.**—The cartoonists of local papers and national syndicates should be requested to draw cartoons calling attention to the annual fire waste. Where there are several papers in a city, a prize for the best cartoon on the subject issued during the week is fruitful of results. Fire prevention is excellent material for the cartoonist.

**Chambers of Commerce.**—The support and active cooperation of the local Chamber of Commerce is almost essential to the Fire Prevention Week campaign. In many cities, the Chamber is the guiding spirit. Every such organization should have a fire prevention committee and this committee should take a leading part in the campaign. The business men of any city are likely to be the most familiar with the city's principal deficiencies in the matter of fire protection. Fire Prevention Week offers to them an opportunity for starting a permanent drive to eliminate fire hazards.

\*See "How Boy Scouts Are Cooperating with Fire Departments," THE AMERICAN CITY, August, 1923, page 171.



From The Dallas Morning News

**"MRS. O'LEARY'S COW IS STILL IN OUR MIDST"**

"Human carelessness still causes a greater loss each year than was caused by the Chicago conflagration"

**Churches.**—The church can be of great value in the fight against careless fires and the enormous loss of life resulting therefrom. Ministers and superintendents of Sunday Schools should be requested to lay stress on this important subject on the Sunday which falls in Fire Prevention Week.

**Circular Letters.**—The Fire Prevention Week Committee will find circular letters addressed to householders, business men, ministers, school teachers, etc., a convenient and effective way of spreading information. With these letters, posters, programs and handbills can be enclosed. They should be sent out, as a rule, a short time in advance of the campaign.

**City Vehicles.**—The various trucks and wagons operated by city departments may be decorated with fire prevention posters.

**Clean-up Activities.**—The clean-up feature should be made one of the most important of the campaign. A general removal of rubbish and dirt from cellars and attics is an excellent preventive measure against fire. Municipal authorities should provide ample facilities for rubbish removal. Detailed suggestions for clean-up campaigns may be obtained from the National Clean-up and Paint-up Campaign Bureau, Pontiac Building, St. Louis, Mo.

**Clocks.**—A feature that will attract attention is a large clock or dial mounted in a public square with hands showing the number of fires which occurred a year ago and those occurring daily during the campaign. In this way the effect of the campaign can be indicated and the public will help to keep the fire loss down.

**Clubs.**—The various civic clubs should be represented on the campaign committee and should devote at least one of their meetings to fire prevention.



From Galveston Daily News, Oct. 9, 1921

**"NERO FIDDLER WHILE ROME BURNED"**  
**"Let's stop fiddling and prevent this needless loss"**

*Colors, Fire Prevention.*—The fire prevention colors are olive green and brick red. They should be used on all flags, buttons, badges, floats, etc.

*Committee Organization.*—It is of little importance who takes the initial step in planning a fire prevention week campaign so long as it results in getting things started. The organization committee should include representatives from the chamber of commerce, civic clubs, women's clubs and all other organizations having an active interest in civic welfare. It should include the fire chief and the superintendent of schools. This general committee should get under way well in advance of Fire Prevention Week. It should appoint subcommittees headed by influential men on the following phases of activity: Publicity, Meetings and Speakers, Sunday Services, Parade (or Field Day), Literature, Window Display, Factories, Ordinances, Schools, Advertisements, Motion Pictures, Clean-up, Finance and Permanent Results. The extent of committee organization and work will depend largely on the size of the community.

*Credit Men.*—The local body of Credit Men have in many cases sponsored and organized the Fire Prevention Week campaign. They should be called on to assist in the work, as they are naturally interested in a reduction of the fire loss.

*Essays.*—The preparation of fire prevention essays by the school children is an excellent means of promoting interest in the subject. This can be made more effective by offering prizes for the best essays and having them published in the local papers.

*Exhibits.*—A fire prevention exhibit can be easily arranged in some popular location and is of good educational value. There are all sorts of ways of making exhibits interesting and effective. The exhibit should be designed to fit local conditions. Such subjects as matches, smoking hazards, gasoline hazards, Christmas or Fourth of July hazards, and home hazards are good subjects for exhibits.

*Fairs.*—Many of the large state and county fairs occur in the fall about the time of Fire Prevention Week. These fairs offer an excellent opportunity for exhibits, speeches, moving pictures, and distribution of fire prevention literature. There is also an opportunity for display of fire-fighting apparatus and maneuvers by the fire department.

*Fillers.*—It is desirable to prepare material which can be used by the newspapers as fillers. This material should be newsy, concise, and interesting. It is probably best to prepare such matter locally, so that attention can be called to the various local hazards.

*Fire Alarm Cards.*—It is surprising how few people can intelligently turn in an alarm. An importance piece of literature for distribution is a card giving directions as to the proper operation of an alarm box in case of fire. These cards should have a space for inserting the number of the nearest box and should be made of substantial cardboard so that they can be hung up in the home or building.

*Fire Alarm Demonstration Panels.*—A panel, with box and receiving apparatus mounted so that the box may be pulled and signal registered, is effective for use in schools or mounted on a fire-department truck and used for street corner demonstrations.

*Fire Department.*—The fire department should play an important part in every Fire Prevention Week campaign. The fire chief should be one of the leading figures in planning the campaign, as none knows better than he the danger-spots of the city and the value of fire prevention. The firemen can be used for inspection work, and for giving talks to school children. If the fire apparatus is used in a parade, care should be taken not to weaken the department unduly.

*Fire Drills.*—Every school should hold at least one fire drill during Fire Prevention Week. This will probably be anticipated and be of little value except for exhibition purposes. It is taken for granted that every school holds such drills periodically.

*Fire Marshal.*—The various state fire marshals can be depended on to promote the Fire Prevention Week observance in their states. Their aid and advice should be solicited in planning the campaign. If possible, a statement should be obtained from the fire marshal for use in the local newspapers.

*Floats.*—Attractively decorated floats have a wide appeal and should be used, if possible, in fire prevention parades. The various common fire hazards make good subject matter for such displays.

*Foreign-Language Posters.*—In cities where there is a large foreign population it is important to have posters and other literature printed in foreign languages. These foreign-born residents are often responsible for unsafe fire conditions and they should be included in the campaign.

*Government Cooperation.*—The Federal Government is rapidly awakening to the serious economic waste caused by the fire loss. Its material is of great educational value and should be used whenever possible. Last year the President issued a splendid proclamation. The Department of Agriculture issued a comprehensive bulletin on farm fires. The Bureau of Education of the Department of the Interior issued a sheet devoted to fire prevention for schools.

*Handbills.*—Attractive handbills calling attention to the Fire Prevention Week observance should be prepared and placed in the hands of every person in the community. These should be distributed several days in advance of Fire Prevention Week.

*Handbook.*—A fire prevention day handbook used last year by the National Fire Protection Association (40 Central Street, Boston, Mass.), is very useful for members of committees planning the Fire Prevention Week Campaign. Copies are still available.

*Inspections.*—A comprehensive inspection, either by fire department inspectors or others, of all property in the community is of very



PART OF AN EXHIBIT AT STATE FAIR BY THE OHIO STATE FIRE MARSHAL

great benefit in disclosing fire hazards. Inspections should follow the clean-up feature of the campaign, and the comparative condition of various districts should be shown. Self-inspection blanks should be prepared for use of home owners and factories. These blanks should indicate the various hazards to look for, and should be arranged in such a way that, if the questions are properly answered, a complete survey of the property will have been made. School children can be provided with home inspection blanks with good results.

*Insurance Agents.*—The insurance agent is logically interested in a fire prevention campaign and should take active part in promoting it. The agent may cooperate through his advertising, advice to clients, window displays, etc.

*Labels.*—Package labels should be supplied for the use of all the department stores and other places where many packages are sent out. A gummed label bearing the words, "This is Fire Prevention Week—Do Your Part," printed in red, is satisfactory for this purpose.

*Lantern Slides.*—Slides should be prepared for use in all the motion-picture theaters, calling attention to Fire Prevention Week. Pictures of recent local fires with appropriate text can be used to good advantage in this connection.

*Letter Stickers.*—Small gummed stickers for attaching to correspondence should be prepared and a supply sent to all the business houses a few weeks before the campaign with the request that they be attached to all correspondence. In this way the fire prevention campaign in any city will be called to the attention of all those having dealings with any firm in the city.

*Magazines.*—National advertisers should be urged to stress fire prevention in their copy for release during Fire Prevention Week. Magazines should be requested to print articles on fire prevention at this time. A very large field can be reached in this manner. Local magazines, such as chamber of commerce publications, trade papers, etc., should feature the local campaign in a special issue.

*Menu Cards.*—The menu cards in all hotels and restaurants should bear a line at the bottom calling attention to the Fire Prevention Week observance.

*Milk Bottle Caps.*—Fire prevention warnings printed on milk bottle caps will reach every householder and compel his attention. This rather unusual method has been used with good effect in previous campaigns.

*Motion Pictures.*—Motion pictures on fire prevention are of great value, particularly in interesting children in the campaign. Un-





A FIRE TRUCK WHICH GAVE FINE PUBLICITY TO MILWAUKEE'S FIRE PREVENTION WEEK

fortunately, there are few good pictures on this subject available. Local theaters should, if possible, obtain one or more of these films for use during the week. If a large campaign is to be carried out, a special film on fire prevention might be produced for the occasion and used with good results.

**Newspapers.**—Newspaper publicity is a very valuable asset to any fire prevention campaign. The support of the local papers should be secured in advance. Newspapers should run daily reports on the activities and progress of the campaign, and on the final day issue a special fire prevention supplement. Local material for such supplements can be readily prepared and is much more effective than use of national publicity matter. Pictures of fires and hazardous conditions in the city are valuable. These supplements often pay for themselves through fire prevention advertising which is included and which is run during the week.

**Ordinances.**—Fire Prevention Week offers a psychological time to create public sentiment in favor of fire prevention ordinances. The city building code should be examined and compared with the Model Code issued by the National Board of Fire Underwriters. Other subjects worthy of attention are the construction of chimneys, prohibition of fire-works, regulation of handling, storage and sale of inflammable liquids, motion-picture machines, and theater protection. Model ordinances have been prepared covering all of these subjects. A carefully worded ordinance with strict enforcement provisions is a very decided factor in reducing fire losses.

**Parade.**—In many cases it is possible to make a parade a feature of the program. If a meeting is to be held, the parade should take place previous to the meeting and

wind up at the place of meeting. The parade should be made as large and striking as possible and include all the various public organizations. Fire apparatus, floats, Boy Scouts, school children, labor organizations, patriotic and civic societies—all should be included.

**Pay Envelopes.**—The pay envelopes of large factories should bear a line calling attention to Fire Prevention Week. If tickets are issued for a meeting, it would be a good plan to put one in each pay envelope.

**Phonograph Records.**—This medium has been used for spreading propaganda in safety campaigns with success. If adopted in any fire prevention campaign, a good speaker of prominence should be selected to deliver the message.

**Plays.**—A fire prevention play or pageant is an attraction for a school program or for a public meeting. This is most effective if written by a local playwright. An excellent playlet for school children, entitled "The Trial of Fire," has been prepared by the National Board of Fire Underwriters and may be obtained from that organization at 76 William Street, New York, N. Y.

**Police.**—The police may be of great assistance in the Fire Prevention Week campaign. They may be used to distribute Fire Prevention Week proclamations and other literature from house to house. The police should be instructed in the fire prevention laws of the city, so that they may report hazardous conditions.

**Posters.**—Attractive posters should be spread broadcast through the city a few days before the campaign. These posters can be used in window displays, on street cars and vehicles, in schools and public buildings, and on bulletin



A FIRE PREVENTION EXHIBIT IN BOISE, IDAHO

boards of factories. A national poster is prepared by the National Fire Protection Association, and if finances will permit, local posters should also be prepared. Posters may be all sizes (12 inches by 16 inches is a good standard size).

**Prize Contests.**—The prize contest is certain to stimulate interest. Prizes for school essays have already been mentioned. There may also be prizes for the most attractive window display, for the best newspaper cartoon, for the most attractive float in the parade, etc. The cleanest and safest factory in the community may receive an award. Other ways of promoting such contests will occur to the committee in charge.

**Proclamations.** — Proclamations issued by federal, royal, state, provincial or municipal authorities should be given wide publicity, as they bear great weight. If possible, copies should be made and distributed. They should be given prominent space in the papers.

**Radio Broadcasting.**—A prominent speaker should be selected for each day of the campaign to give a fire prevention message through the local broadcasting station. This method of reaching the public should not be overlooked. The subject matter of the talks should be carefully prepared in advance to have the greatest value.

**Railroads.**—The railroads should be asked to cooperate by carrying posters in all passenger coaches and in the stations and by educating their employees in fire prevention. Some of the lines have given excellent support to the movement in previous campaigns.

**Safety Councils.**—Local chapters of the National Safety Council have been very helpful in fire prevention campaigns in the past. Their support should be solicited. Safety men are usually familiar with the importance of fire prevention and anxious to reduce fire losses.

**Sales Bulletins.**—The sales bulletins issued by any of the large companies manufacturing fire-fighting apparatus should contain special material informing the retailer how to best use Fire Prevention Week as an aid to sales. Data on advertising and window displays would be helpful to the retailer and to the fire prevention campaign in general.

**Schools.**—Fire prevention instruction in the schools is the most fruitful of all fields of fire prevention endeavor. Where such instruction is already a part of the school work, special exercises will give added interest to the work throughout the year. Where fire prevention work is not already a feature of instruction,



THIS CAR FLOAT OF THE UNITED RAILWAYS AND ELECTRIC COMPANY WAS RUN THROUGH THE STREETS OF BALTIMORE DURING THE ENTIRE PERIOD OF A FIRE PREVENTION CAMPAIGN IN THAT CITY

Fire Prevention Week will make an excellent start for such work.

Talks by uniformed officers of the fire department make a strong appeal to children. Throughout the week the children should be given instruction, prepare essays, and take part in the general campaign. A special day should be set aside for fire prevention exercises. These exercises should include such items as the reading of the President's or Governor's proclamation, reading of prize essays, speeches, recitations, and playlets. Parents should be invited. It is a good plan to appoint a fire warden for each class or grade. These boys can inspect the school for fire hazards and also help in the general inspection work. The National Board of Fire Underwriters publishes a text-book for school children, "Safeguarding the Home against Fire." Copies of this book should be placed in the hands of all teachers and children.

**Self-Inspection Blanks.**—Good results may be obtained from issuing self-inspection blanks for use of school children in inspecting homes and for use of owners of factories and proprietors of mercantile establishments. These blanks should contain questions covering all hazards so that, if followed, a complete inspection of the property will be insured.

**Speakers.**—The organization committee should line up all available speakers and assign them to various meetings and see that they are properly provided with material. Speakers should be provided for all club meetings during the week, for schools, public meetings, and radio broadcasting. Speakers should also be obtained who can reach the foreign population in their native tongue.

**Stickers.**—Stickers may be provided for use on automobile wind-shields and for other purposes. It is effective to have these a miniature copy of the larger poster that is used.

**Street Car Companies.**—The local transit companies should be asked to cooperate in the campaign. Every car should carry the posters. If possible a special car decorated with fire prevention material should be run through the streets during the campaign.

**Syndicate and Column Writers.**—Syndicate and column writers should be addressed relative to featuring fire prevention in their columns during the week. The syndicate or column writer, as a rule, covers all sorts of subjects, and it should not be difficult to induce him to aid in this important work.

**Theaters.**—All the local theaters should be provided with lantern slides, and the motion picture theaters should run special fire prevention films, if available. All theaters should permit speeches or announcements to be made if the occasion should arise. Theaters and other places of public assembly should be inspected during the week and unsafe conditions called to the attention of the proper authorities.

**Theater Programs.**—Programs may bear a line on each page calling attention to the Fire Prevention Week observance.

**Window Displays.**—Nearly every merchant will find articles in his stock which have some connection with fire prevention. There are unlimited opportunities for attractive and worth-while displays. This feature of the campaign attracts the attention of many and is very helpful.

**Women's Clubs.**—The women's clubs can cooperate effectively in all of the activities of the campaign. They should be particularly active in the clean-up feature and in the observance in the schools. At least one of their meetings should be devoted to fire prevention discussion.

HANG THIS IN YOUR KITCHEN

**FIRE ALARM CARD**


WHAT TO DO IN CASE OF FIRE

THE NEAREST FIRE ALARM BOX IS

NUMBER .....


CORNER OF .....

EVERY MEMBER OF THE FAMILY SHOULD KNOW THE LOCATION AND NUMBER OF THIS BOX.



Box Closed

(Put the number of your box on the cover)



Box Open

Read and understand the instructions on the box *now*. Opening the door does not send the alarm. You must *pull down the inside handle*. Listen to the signal going in and stay there to direct the firemen to the fire.

If the signal box is too far away use the telephone. Call **FIRE DEPARTMENT EMERGENCY**. Stay at the telephone and give the operator your telephone number and the location of the fire.

National Fire Protection Association,  
Boston, Mass.

THE DISTRIBUTION OF SUCH CARDS AS THIS HELPS TO EDUCATE THE PEOPLE AS TO THE LOCATION OF THE NEAREST FIRE ALARM BOX AND HOW TO OPERATE IT

## A Traffic Ordinance of 1861 and the Problems of To-day

**C**ONTRARY to the general impression, traffic is not an exclusively modern municipal problem, as witness an ordinance passed more than sixty years ago in Harrisburg, Pa.:

"That if any person or persons shall ride on horseback or shall drive any carriage or sleigh through or along any of the streets, lanes or alleys of the said city faster than a common traveling gait, or shall drive his, her or their wagon or cart through or along the same faster than a common trot or pace, he, she or they so offending and being thereof convicted, shall forfeit and pay a fine discretionary with the mayor not to exceed \$5 for every such offense and costs of prosecution."

This vigorous councilmanic effort to wrestle with traffic was enacted March 13, 1861. It was the city's first traffic law, so far as the records show. Many years elapsed before any other serious attempt was made to regulate traffic, says the Municipal League of Harrisburg in its recent Traffic folder.

In 1861 the city fathers worried if horses moved too fast—or not at all. The parking

problem was already in evidence, as indicated by the ordering of standing teams out of the Market Square. To-day Harrisburg, in common with most other cities, is struggling with the problem of the automobile which moves too fast or doesn't move at all. To quote further from the Municipal League folder:

"Fundamentally, the streets are for the passage, not the stoppage, of traffic. A motorist must recognize that when he parks his car, even before his residence or his business establishment, he is enjoying a privilege, not exercising a right. In so far as the exigencies of traffic permit, there should be generosity in permitting parking, but where there is congestion or where parking creates hazards or confusion, then the common interest requires the restriction or abolition of parking.

"It is inevitable that here, as in the centers of all other cities, the time will come when no parking of any sort will be permitted. Motorists will have to park their cars on public highways remote from the congested areas or store in garages or private parking premises, as many do now."

# Relation of the Police Department to Parades and Gatherings

By Cornelius F. Cahalane

Deputy Chief Inspector of Police, City of New York

**P**ARADES and processions which assemble and march through the streets in numbers which interfere with the free passage of pedestrians or vehicular traffic should be regulated by the police. If a permit is required, it should be obtained in sufficient time to make the necessary police arrangements. The police official responsible, or his representative, should get from the committee or person in charge:

- (1) The purpose of the parade
- (2) The proposed route and destination
- (3) The number of persons, vehicles, floats, etc., that will participate
- (4) The time and place of formation and dismissal
- (5) The reviewing points or stands
- (6) The number of persons on stands
- (7) The place where reviewing party will assemble, how they will arrive at and leave the stand, and whether or not general admission to the stand is to be by ticket
- (8) Whether or not there is any likelihood of persons objecting to the parade who would offer violence or interference to the participants
- (9) Whether a large gathering is expected to view the parade

Before approving of the route, the police should examine it from the point of view of unnecessary interference with business interests and with the comfort of the traveling public. Where the proposed route interferes seriously, and if the purpose of the parade will be served as well, the police should suggest changing the route to streets where the least interference will be suffered.

## Attendance

If held on a holiday or at a time when most business is suspended, it is reasonable

*The problem of handling parades is similar in every community. In large cities the crowd and conditions requiring police regulation are of course greater than in small ones. Proportionately, however, the problem is the same. While the crowds are greater in a large city, the Department has more men to handle them; while the crowds are smaller in a small city, the official in charge has fewer men to handle the situation. Each official must use his brain and police experience to cope with the condition.*

to expect that many people will assemble. On a working day, while not so great a crowd will attend, the vehicular traffic will require more attention, and persons doing business on or near the route should not be unnecessarily interfered with. They and their patrons

should have the greatest possible use of the streets consistent with the reasonable requirements of the spectators and the persons in the parade.

The number of men required to police a parade is dependent upon various conditions. If the general public are in sympathy with the purpose of the parade, it is reasonable to assume that no violence will be offered. If the public is not in sympathy, violence is likely to be offered, and in such case greater police precautions must be taken by increasing the uniformed and detective guard on the street as well as on the roofs or other places of vantage which would be used by persons to throw missiles or possibly to shoot at the participants.

## Vulnerable Points

The police should know all the vulnerable points along the route of the parade, and should go over it in advance so as to acquaint themselves with any obstructions or places which might be dangerous, or which might retard or interfere with the parade or public. If possible, these should be removed or safeguarded. A map of the route also should be made, with the location of each man's place of assignment, so that the force may be intelligently distributed and the men properly instructed in their duties.

Before the parade, the streets intersect-

ing the route should be studied so as to know the street car and bus crossings, the fire, ambulance, and mail run streets, and those where there is considerable vehicular traffic, so as to determine the number of men that will be required to police each block properly.

In estimating the space required to take care of a large gathering on the sidewalk, it can be figured that about five average-sized persons can comfortably stand in a space one yard square. If a block is 200 feet long and the people extend back 9 feet from the curb, this space should accommodate between 900 and 1,000 persons.

### Policing Routes

The route of the parade should be divided into sections, and each section should be in charge of a police official. He should arrange to establish a headquarters at a store or signal-box along the route, so that Police Headquarters can communicate with him regarding matters connected with the parade or concerning the shift of men from the route to a sudden police emergency, should one occur in some other portion of the city.

The force should be assigned to the routes before the crowd forms on the street, so as to establish lines in advance of the gathering of the crowd. This prevents the necessity of man-handling those who encroach on the roadway to get them back on the curb.

Vehicles should not be permitted to remain unattended on the route of the parade for at least half an hour before the time of starting, and should be ready to move at least five minutes in advance of the parade. At the formation, the side streets should be kept clear of vehicles which are not part of the parade. Military organizations handle their units without much assistance, but civic organizations, whose members are not trained, are likely to become confused as to their point of formation. The police should help them by having prepared in advance a copy of the place of formation of the various units, and by assisting them in getting into their places and in getting to the main route.

The head of the parade should be stationed on a street farthest from the point to which they are to march. For example, if a parade is to move south, the head of the parade should form and move from the

farthest street north, the next units to move should occupy the street immediately south of the head of the column, etc.

In order to prevent congestion at street corners and to allow persons to cross the route of the parade, it should be arranged with the marshal of the parade to have frequent stops, so as to allow pedestrians and vehicular traffic to cross wherever the parade is not in close order, and the distances maintained between the units permit. At each busy intersection the police official in charge should watch for such intervals, and should quickly pass traffic across the street. Care must be exercised in stopping the marchers for traffic to cross, so as not to break a regiment or some other distinct unit of the parade. If for some cause the halt occurs in advance of a crossing, the rear company or platoon should be halted a sufficient distance from the crosswalk so as to allow a free passage for pedestrians and vehicles from crosswalk to crosswalk.

A motor car or motor-cycle should be used to precede the parade by about ten blocks. The operator should warn the police stationed along the route of the approach of the head of the parade, so as to clear the route of vehicles.

Police lines should be formed and held at the curb, and no persons should be permitted in the street except persons taking part in the parade, members of the press, or other persons specially employed. To permit one person to remain outside the police lines causes those who are held in check to feel that an unjust exception is being made. The crowd often resents what may be considered favoritism, becomes unruly, and pushes and shoves, causing the lines to break.

During the passage of the parade the police should face the crowd, thus giving them a chance to cope quickly with any condition arising, such as persons shoving, pickpockets working, persons becoming exhausted, etc.

It will be found that the greatest congestion occurs near the exits of transit lines and on the streets nearest such places, e.g., at railroad stations and crosstown car or bus lines. The immediate vicinity of the reviewing stand also requires special attention. The greatest number of persons will congregate on the route near such

points, and such points should be more strongly policed. Many cities use ropes fastened to the lighting poles on blocks where the congestion is not heavy. Some cities have sunk into the sidewalk near the curb—on main thoroughfares where parades are regularly held—pipes about 18 inches deep, placed 20 feet apart. Into these sunken pipes they drop narrower pipes about 5½ feet high, each with an eye on the top. Through these eyes they pass a rope, and it is claimed that this arrangement gives satisfaction.

Great care should be exercised to see that the side streets covering the route do not become congested with vehicles, and that at least a clear opening is left in the center of each street to permit free passage of ambulances or fire apparatus. Congestion can be prevented, particularly on important fire and ambulance streets, by stationing patrolmen in the side street for that purpose. If necessary, vehicular traffic can be diverted to other channels. Usually the main arteries which parallel the route of the parade become congested at busy intersections, and, if possible, a man should be stationed there to keep these parallel streets open.

On busy cross streets, such as a heavily traversed crosstown car line, a sufficient force should be assigned to hold the crowd back about 30 feet from the building line on each corner. This helps keep the people in check, and assists in controlling them while the parade is passing. It also allows the pedestrians to cross the street when a break occurs in the line of march.

#### Gatherings on Street

Large gatherings on the street should not be permitted to congest the sidewalk from the curb to the building line. A passage should be maintained for pedestrians near the building line, so as to give them free access to the buildings along the route and permit persons to enter and leave the crowd. In such instances they should be compelled to walk to the right. To direct persons to the right, a policeman should be stationed near the building line on each cross street, both to prevent them from crossing, except at designated points along the route, and to warn them in time to change their direction.

Where the crowd is more than seven rows deep, back from the curb, and some

persons become unruly, or a person requires medical attention, as a rule it is difficult to cope with such condition from the curb. Policemen should be sent into the rear or center of the crowd to handle it.

Very often a person who feels that he is a privileged character will try to shove his way past others who may have stood for hours. Another, who becomes tired of standing, will try to leave in the direction of the curb. Another, because of his or her size and lack of respect and consideration for others, will try to seek a point of vantage. Any one of these things will cause those in front of them to become unruly and force them to step out of bounds unless the patrolman stationed at that point is facing the crowd and is quick to curb the particular offender.

Persons should be prevented from using improvised stands on the sidewalk, such as boxes and barrels, as they block the view of those behind them and are likely to endanger the safety of persons who are crowded about.

When the rear of the parade has passed the starting point, a sufficient rear guard of police should be formed by patrolmen doing duty in the vicinity. This rear guard should march to the destination to prevent unauthorized persons or vehicles from interfering with the marchers or from congesting the space between the marchers and the curb.

#### Dismissal

At the dismissal points, vehicular traffic should be prevented from impeding the marchers, and no stops should be permitted that will tend to retard the entire line of march. So far as possible, the marchers at the head of the column should be requested not to return to the parade by going back through their dismissal streets, as they tend to congest and interfere with other units which must use the same streets for dismissal.

After the parade has passed, particular attention should be paid to the regulation of vehicular traffic along the route, so as to insure the safety of spectators crossing the streets. Attention also must be given to railroad stations and important transfer points near the dismissal points, and along the routes where great crowds will assemble. These places should be policed so as to facilitate the movement of persons who

gather quickly in large numbers after the parade to return to their homes.

Where a reviewing stand is used, the officer in charge should police it with the idea that an accident is likely to occur. He must have sufficient space on the streets adjacent to allow the persons on the stand to be diverted to clear, safe space. Ambulances responding must have free and uninterrupted use of the space to get to and from the stand. This space will serve to handle an accident, and can be used to bring the reviewing party to and from the stand without interference.

Where the parade is small, and is not likely to attract large crowds on the streets to view it, the marchers can be requested to form in squad formation and use one-half of the street. In such instances, the

vehicular traffic moving the same direction as the parade can be diverted to parallel streets or, if the street is wide enough, both streams of traffic may be permitted in opposite directions on the other half of the street. Patrolmen can be stationed between the parade and the vehicular traffic to regulate its movement and to prevent interference with the marchers.

Parades which move over streets for which it is not necessary to have a detail along the curb should at least have a policeman assigned as an escort, to march at the head and to the side, so as to preserve order and prevent any unauthorized interference.

**ACKNOWLEDGMENT.**—The foregoing article comprises Chapter XIX of Inspector Cahalane's new book, "The Policeman," and is printed by permission of the author and of the publishers, E. P. Dutton & Company, of New York.

## Neglect of Public Statues

**I**N nearly every city of considerable size in the United States, and perhaps in all the cities of the Atlantic coast section, there are to be seen in the public parks and in museums and other municipal buildings dignified and commanding bronze or marble figures, the works of artists of note, which have for years been sadly neglected. In New York, Philadelphia and Boston, as well as in almost numberless cities, grime and the elements have combined to make unsightly those things which should be attractive and beautiful. It is a false sense which dictates the careless disregard of public statues upon the assumption that they, like other antiques, increase in attractiveness and possibly in value as they more and more show the evidences of passing years.

In an article recently written for the National Sculpture Society, Mrs. Adeline Adams, wife of Herbert Adams, the sculptor, speaks thoughtfully and authoritatively upon this subject. She asks: "Is it not a singular superstition that a statue, once placed, should never be touched by the hand of cleanliness, but should suffer in silence whatever indignities the soot and the birds and the climate heap upon it?" The question is a pertinent one. There need not be, and should not be, that polishing to the height of offensiveness which

would detract from the beauty and dignity of pieces grown mature and weather-beaten as they have faced the sunshine and storms of years. But there should be provided that decent care and absolute cleanliness demanded by that proper regard which every community has for the persons or the events which they have taken steps to honor or commemorate.

The expense of this supervision and care need not be a matter requiring any considerable appropriation of public moneys. The work could be directed by commissions already provided for, or by specially chosen art commissions or boards. Let those who have not given serious thought to the matter look about them and they will discover the need. Boston, for instance, boasts hundreds of historical statues, dozens erected to the memory of famous men of letters, and many to soldiers and heroes since the earliest days of the Republic. The possessions of other cities are quite as valuable in this respect. Yet those whom their fellows and descendants have eagerly honored seem sadly neglected, if not forgotten, as the seasons continue to obliterate the beauties with which skillful and loving hands painstakingly adorned the silent monuments erected in tribute to them.

—*Christian Science Monitor.*

## An Ideal Which Any City Might Well Adopt

**B**UFFALO'S aim is not to be the biggest city, not to be the most beautiful city, but to be a well-planned city in which every citizen will be proud to live. Henry Drummond, famous writer and teacher, once said, "He who makes the city makes the world. After all, though men make life, it is the cities which make men." It is the responsibility of every citizen to get behind Buffalo, realizing

her possibilities. By advocating wisely-studied city planning, there will be promoted economies in government, ultimate lower tax rates, a more efficient city, better housing, better living and working conditions, all of which will improve the health, happiness and comfort of every man, woman and child in Buffalo."

—From a supplement to "City Facts," published by the Buffalo City Planning Association, Inc.



# Surprise Milk Contests

By R. J. Posson

Market Milk Specialist, Bureau of Animal Industry, U. S. Department of Agriculture

**G**OOD progress in improving the quality of their milk supplies is reported from cities in eleven western states in which the Dairy Division of the United States Department of Agriculture has been cooperating in "surprise milk contests."

This sort of contest is conducted with street samples which are collected from the distributors without previous notice. All the chemical analyses and bacteria counts made by the health departments between contests are included in the average total scores which are given the dairymen. Thus the scores are cumulative and are not based on single samples.

The various classes—such as pasteurized and raw milk and cream, and certified milk—must be kept separate. At least once a month, and oftener if possible, the city health department collects two pint bottles of milk and two half-pint bottles of cream from each person delivering milk or cream in the city. At the time of collection one of the samples is well mixed, the bottle opened, and the temperature of the milk or cream taken. This sample is then properly marked so as not to be used for bacteriological examination, but used later for chemical determinations. Both samples are placed immediately on ice until ready for analysis. The following determinations are made on the milk: Bacteria, sediment, specific gravity, fat, solids not fat, flavor and odor, and condition of bottle and cap. After a definite period of time—three, six, or twelve months—the determinations made on the samples of each dairyman are aver-

aged; these averages constitute a new record, which is transferred to the milk or cream card and scored. The scores allowed on each point are added together and make the total score. At the end of the period the names of the dairymen are published in the order of their scores, the highest in each class coming first.

It is evident that the health department of a city must have proper laboratory equipment in order to conduct milk and cream contests. Full instructions for this work are given in United States Department of Agriculture Circular 53, entitled "Milk and Cream Contests," by Ernest Kelly and George B. Taylor. The Department, so far as it has men available for this work, is glad to cooperate with state health departments or others in introducing the contests. This is done by working with state inspectors in a few cities in each state until they become familiar enough with the contests to introduce and supervise them in other cities. There is no doubt of their value in stimulating improvement in the quality of a city milk supply.

For three consecutive years first place in the milk contest open to New Jersey municipalities has been won by Montclair, which attained an average of 91.16 for the five samples taken January 9, 1923. Summit won second place in this contest, with an average of 88.1. The prize offered for the first year was a banner, and last year a cup was offered, to become the permanent property of the municipality first winning three contests.

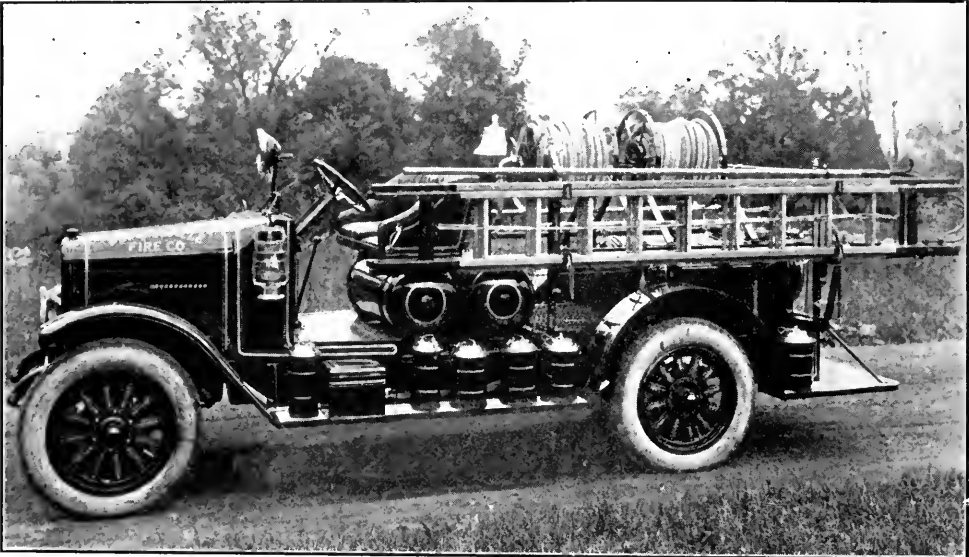
## Health Instruction in the School Program

**B**ROADLY speaking, the children of the nation attend the public school. In this great democratic institution our 22,000,000 to 24,000,000 boys and girls of to-day are preparing for citizens of to-morrow. The experience of all civilized nations shows that the economic, industrial or political service of a citizen is measured in a large degree by his physical condition. It is a matter of first importance, therefore, for every school to include in its program the instruction and training in the fundamentals of health that shall give boys and girls natural physical development and

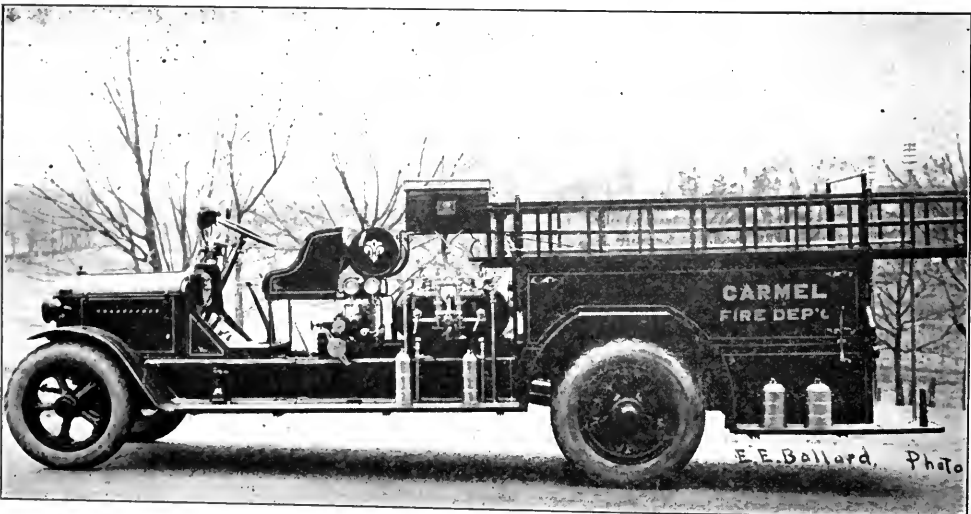
sound, strong bodies, and shall impress upon them the importance of observing those fundamental rules which are essential to good health.

If health work in the school is to be made practical and effective, it must be given its place in the school program. It must receive the same regular, scientific and pedagogical consideration as any other subject in the curriculum. It is important that the child himself should look upon instruction in health with the same consideration that he regards any other subject in the school.—*Public Health, Michigan Department of Health.*

## Motor Equipment in Fire, Police and Water Departments

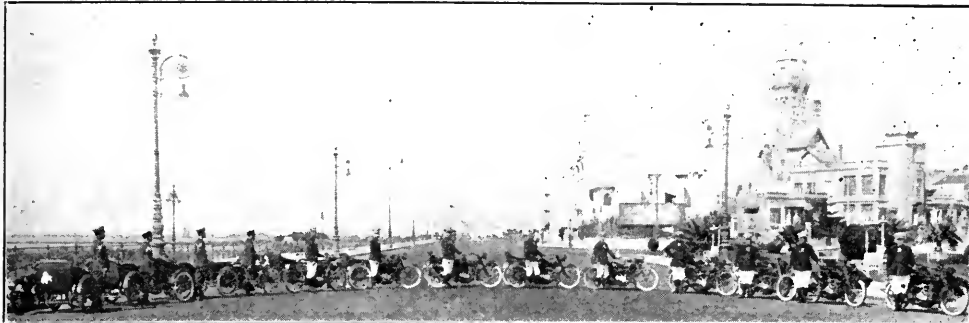


A FOAMITE-CHILDS 4-TANK CHEMICAL ENGINE MOUNTED ON AN INTERNATIONAL HARVESTER 1-TON CHASSIS PLACED IN SERVICE IN PURCELLVILLE, VA., IN JULY, 1923

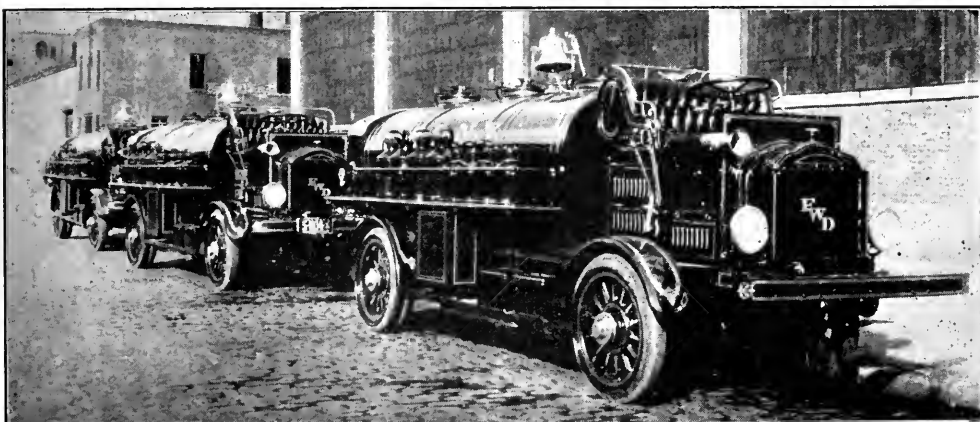


NEW TRIPLE COMBINATION ENGINE RECENTLY PURCHASED BY CARMEL, N. Y., FIRE DEPARTMENT

This combination engine was built by the Buffalo Fire Appliance Corp. and is mounted on a 2-ton GMC chassis. The equipment includes two standard chemical tanks of 35 gallons capacity each, 200 feet of  $\frac{1}{4}$ -inch Underwriters hose, a perforated steel basket for hose and two extra acid receptacles mounted on the running board. The hose body has a capacity of 1200 feet of double jacket  $2\frac{1}{2}$ -inch water hose. There are two  $2\frac{1}{2}$ -gallon chemical extinguishers mounted on the running board. On one side of the hose body is a 24-foot extension ladder, one 12-foot ladder with folding hooks, one 12-foot pike pole, two Dietz standard firemen's lanterns, one firemen's pickhead axe, and a heavy 36-inch crowbar. The water pump mounted under the seat is a Type B Hale fire pump of the rotary type and is operated from the motor which drives the truck. The pump has a capacity of 350 gallons of water per minute, at 120 pounds pressure. There are two suction tubes, one on each side of the pump, each provided with a cap. There are also two discharge valves and three lengths of suction hose, each 10 feet 6 inches long, mounted on the side of the truck. A hand-operated siren is located on the dashboard and also one 10-inch swivel searchlight. This apparatus was purchased for municipal use from the funds of the Volunteer Fire Department. We are indebted to W. C. Jewell, Secretary, for this photograph

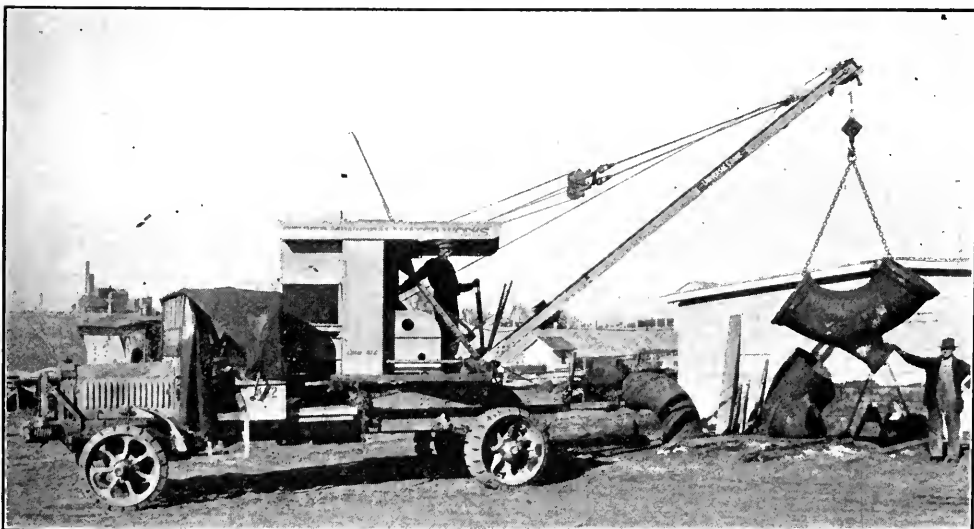


THE MOTORCYCLE SQUAD OF THE MONTEVIDEO, URUGUAY, POLICE DEPARTMENT, EQUIPPED WITH HARLEY-DAVIDSON MOTORCYCLES



THREE NEW COMBINATION GASOLINE AND OIL SUPPLY TANK TRUCKS RECENTLY INSTALLED BY THE NEW YORK CITY FIRE DEPARTMENT

These tank trucks mounted on FWD chassis are equipped with 900-gallon tanks with three compartments of 300-gallon capacity each. In addition they carry four 5-gallon cans in the filler box, six 5-gallon safety cans and four 3-gallon oil cans with top stops. It is intended that the trucks shall carry oil in one of the 300-gallon compartments and gasoline in the other two. They are used to distribute fuel and lubricants to the various stations in the New York Fire Department



UNIVERSAL CRANE USED BY THE DENVER WATER WORKS MOUNTED ON A LIBERTY TRUCK EQUIPPED WITH KELLY-SPRINGFIELD TIRES

# The Traffic Problem of a Growing City

By George H. Herrold

City Planning Engineer, St. Paul, Minn.

TRANSPORTATION in a city may be likened to a circulating medium in which vehicles are the coins, and, like money, the freer the circulation and the more rapid the movement, the greater the volume of commerce. The science of vehicular movement and traffic regulations is new and in the experimental stage; its technic has not yet been developed. However, there are some simple outstanding facts to be recognized and the remedy applied as we continue to study.

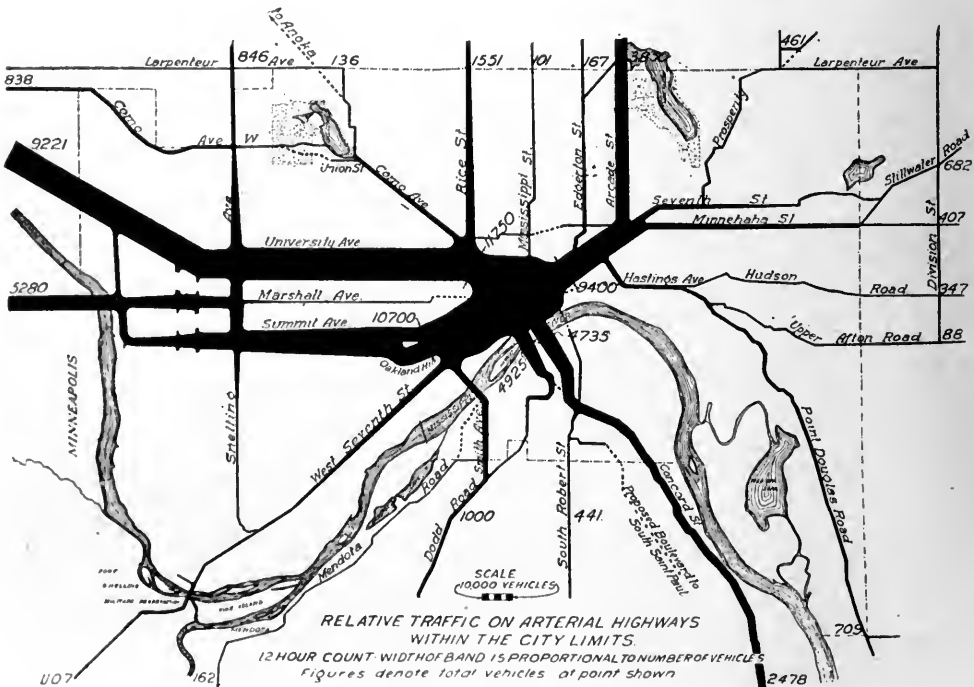
Roadways must be designed for given lines of traffic and in retail districts provision must be made for parking or ranking with regulations as to time; and spaces kept continuously open must be designated in each block for landing the occupants of

cars, whose chauffeurs will depart and return at some stated interval.

Cross-traffic at intersections is one of the chief causes of congestion and delay. Corner cut-backs will provide a great relief and increase the capacity of the intersection. Corners should be cut back sufficiently to permit the curb to be set on a 26-foot radius, the minimum turning radius of the inner wheels of the average car. Where permanent buildings

are in the way, they may be arcaded at the corner, placing the sidewalk inside the building. This permits a car to turn to the right to indicate its direction by its position before coming in contact with the cross-traffic; thus it weaves into line without danger of collision and without retarding traffic in either direction. Where street

The great advantage of the motor vehicle in a city as a time-saver is gradually being lost by the congestion in the streets. This is an economic loss that if capitalized would soon pay for many street widenings.

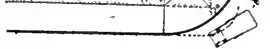


cars turn at important corners, a greater cut-back should be provided to permit a street car and an automobile to make the corner turn at the same time.

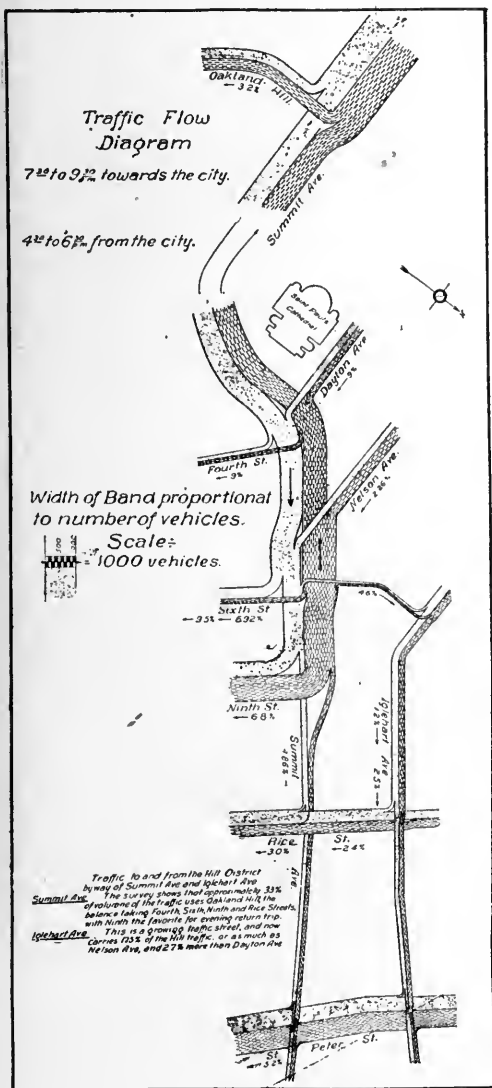
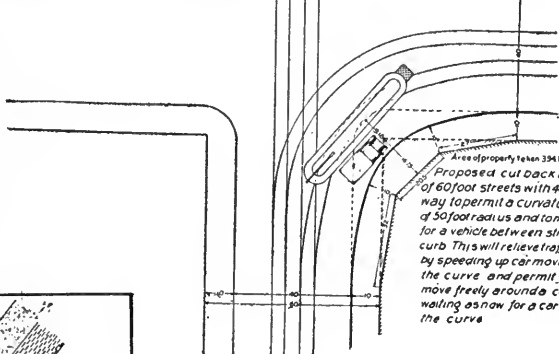
Mass traffic diagrams, such as that prepared by the city of St. Paul and shown herewith, are of great value in indicating the source of traffic streams, their volume, and where parallel arteries should be developed

Proposed cutback of corner of 60 foot streets with 40 foot roadway. to increase sidewalk area and give greater freedom of traffic movement

Area of property taken 12781 sq ft



Proposed cut back at corner of 60 foot streets with 40 foot roadway to permit a curvature of track of 50 foot radius and to make room for a vehicle between street car and curb. This will relieve traffic congestion by speeding up car movements on the curve and permit vehicles to move freely around a corner without waiting as now for a car to round the curve



and provisions made for separating kinds of traffic. For instance, traffic on University Avenue, the main thoroughfare between St. Paul and Minneapolis, is practically uniform in volume from one end to the other, continuously; this traffic has no perceptible peak, while the traffic on Summit Avenue is a continuous, augmented stream as it approaches the business district, the source being the side streets. An artery parallel to University Avenue is to be developed about 1,000 feet away, that slow-moving traffic may use one route, and light, fast-moving vehicles the other. This traffic can then be moved by platoons with a continuous movement, cross-streets being automatically closed before the platoon reaches them, and open when it passes.

The traffic problem of a city planner in an old city is: to make the most of existing streets (1) by the regulation and routing of traffic, (2) by street widenings and extensions. There must be a survey covering: traffic counts; origin and destination; kind of vehicles; their weight, size, commodities carried; cost per ton-mile; location of principal traffic sources; time losses due to circuitous routes or congested points; power losses due to grades; capacity of each street, etc., from which deductions can then be made in a scientific manner.

In the days of horse-drawn vehicles the area tributary to a city within a day's journey was 700 square miles. To-day the radius is 80 miles, or an area of 20,000 square miles. This must be considered in estimating the future capacity of streets.

# The Municipal Bond Situation

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

THE summer is the most inactive season of the year in the municipal as well as other security markets, but this year it has been unusually dull. After the heavy flotation of municipal bonds in June, when sales aggregated \$168,631,642, there was an immediate reaction which marked the beginning of a period of dullness not seen since 1918. The total of bond sales for July was \$54,211,421, which, with the exception of November of last year, when \$53,497,002 bonds were floated, is the smallest monthly total recorded since June, 1920. It is unlikely that the total of August bond sales will exceed that of July.

About the middle of July bond dealers always look for good business, counting on the reinvestment of interest and dividends paid to security owners at that time of the year. This summer the expected reinvestment demand failed to materialize and dealers found themselves somewhat overstocked with bonds. As a result, prices have been cut considerably and the general

level of state and municipal bond prices is now well under that of last April, May and June. It is this decline in market values which has encouraged many of the larger cities and other municipalities to withhold offerings of new issues from the market until fall or winter, when some improvement in prices is looked for.

## IMPORTANT STATE AND MUNICIPAL BOND ISSUES SOLD DURING AUGUST

Amount	Borrower	Maturity	Rate (%)	Net Yield (%)
\$1,000,000	Crawford Co., Pa.	1928-48	4½	4.21
600,000	Delaware .....	*1963	4½	4.35
325,000	Fairport, N. Y....	1928-52	4½	4.49
1,000,000	Oregon .....	1923-43	4½	4.63
2,500,000	Los Angeles, Calif.	1923-62	4¾ & 5	4.77
433,000	Columbus, Ohio..		5	4.65
500,000	Washington Suburban Sanitary District, Md....	†1973	4½	4.74
2,000,000	Philippine Government Irrigation and Permanent Public Works..	1953		
721,000	Hoboken, N. J....	1952	4½	4.79
1,150,000	Morehouse Parish, La. ....	1925-63	5	4.99
		1924-55	5	5.00

\* Optional after 1 year.

† Optional.

## Hope for the Poorly Planned City\*

By Arthur A. Shurtleff

Town Planner

MOST of the well-arranged cities of the world were developed from confused village or town plans. Narrow streets, dead-ended, or jogging and rudimentary thoroughfares prevailed. Intolerable confusion and inconvenience arising from these defects acted in the long run to bring about improvement. By constant adjustment of old plans to new conditions and by painstaking correction of original faults, the most perfectly arranged cities of the world have been developed. It is true that in our own time or within little more than a century, cities have been built at the start in conformity with plans designed for convenience and capable of expansion without involving confusion. Large cities which have been laid out in this manner can be counted almost on the fingers of one hand. The unprecedented changes which have taken place

in the development of transportation and industry and in the increase in city populations have necessitated changes of a more or less radical kind even in these layouts which in the beginning seemed perfect for all time.

Communities in which carefully thought-out repairs are in progress and in which programs for the development of the sparsely built districts have been planned, in the light of experience, are the promising cities of our day. Experience has shown clearly that a poorly planned city may become as satisfactory in the long run as one founded on a plan which attempted perfection in the beginning, according to the best wisdom of that time, but which was not modified constantly to meet new requirements. No live city can be free from changes. In fact, changes which are made with careful regard to immediate, and at the same time to probable, future needs are the evidence of progress and achievement.

\* From the Report of the Fall River Planning Board, 1922.

# News-Stands Need Not Be Eyesores

By Taber Sears

President, The Municipal Art Society of New York

**B**ELIEVING that the sidewalk newspaper booth need not remain in the architectural class of the squatter's shanty and the chicken coop, a special committee of the Municipal Art Society of New York has consulted with news-dealers as to how a news-stand can be made both useful and decorative. As a result, the designs here shown, for a large booth, a small booth, and a table news-stand, have been prepared by the committee. Local news-dealers with whom the Society has conferred have without exception shown a marked interest, and it is hoped that not only New York but many other cities will benefit by this movement.

The design for the large booth embodies a number of practical features for a model stand which can be built at a reasonable price. The principal requirements were found to be:

1. Protection of salable goods from adverse weather conditions and protection against theft
2. Arrangement of counters for rapid sales in rush hours
3. Ease and economy in closing and opening the booth with no loose shutters to store away in the daytime

Should the booth be built in any considerable number at a given time, a construction of standardized metal forms is possible. The booth is, however, primarily designed to be made in wood, which is more available for the average newspaper dealer.

In wood, it is capable of adjustments as to size and as to the smaller fittings which various locations may require.

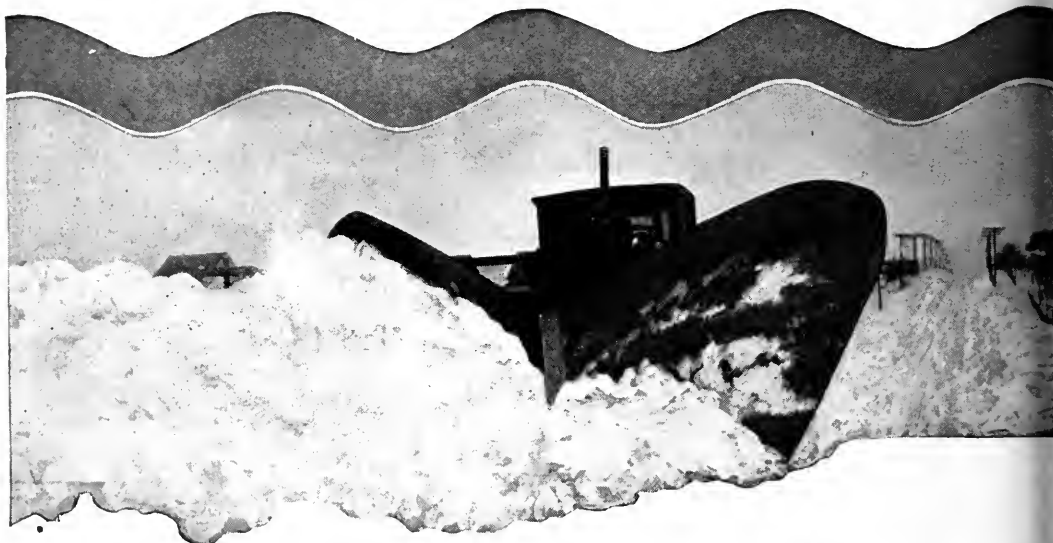
The roof is easy to construct, and is capable of increased or reduced size without serious loss of good looks. During a storm it leads off the rain from the sales counter, and in sunlight it affords shade. The form of sales counter was selected for its solidity under a heavy load of papers. The day's work being finished, the two



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DESIGNS WHICH ARE ADVOCATED BY THE MUNICIPAL ART SOCIETY OF NEW YORK FOR LARGE AND SMALL NEWS-BOOTHES AND A TABLE NEWS-STAND





## For Efficient Snow-fighting!

"I feel I am in position to give an opinion on the merits of the 'Caterpillar' having had over two years' experience directing 'Caterpillars,' and have yet to see them fall down. Last winter our snowfall was nearly 5 feet on the level which means something in this country of high winds with the thermometer often 40 below, as the snow packs so hard it is almost impossible to shovel it. We kept going night and day all winter. For the past year, we have had a 10-Ton 'Caterpillar' working almost continuously and have never seen any tractor comparable with it. No matter where we put it, grading streets, plowing snow, hauling materials, 40 below or 100 above, the 'Caterpillar' has always been on the job doing business."

Martin Welch,  
Street Commissioner,  
Hibbing, Minn.



# CATERPILLAR

Reg. U.S. Pat. Off.

## HOLT

PEORIA, ILL.  
STOCKTON, CALIF.

Just a few more months remain before snow will make its annual attacks upon public safety and health in many northern cities—traffic, fire-fighting equipment, and ambulances stalled, high business losses, trolley cars and interurban bus lines held up.

Is your town ready to meet this menace?

"Caterpillar"\* Tractors provide the quickest, most efficient and economical method of keeping open streets and roads. With improved types of snowplows, "Caterpillars" cope easily with any condition of snowfall. Prepare your community now. The same "Caterpillars" that keep your streets free from snow will pay high returns in scarifying, grading, maintenance, hauling, park work and other jobs throughout the rest of the year.

Let us give you interesting figures on the performance of 2-Ton, 5-Ton, and 10-Ton "Caterpillars" and arrange for an exhibition of our moving pictures of snow removal work.

\*There is but one "Caterpillar"—Holt builds it

THE HOLT MANUFACTURING COMPANY, Inc.  
PEORIA, ILL.

Eastern Division: 50 Church St., New York  
Canadian Holt Co. Ltd., Montreal

Branches and service stations all over the world

hinged sections close up to form a secure and tight shutter. Counters may be arranged for all four sides, but the present design provides a door and a rack for stock display on the fourth side. Space for storage of surplus stock is provided. To protect the salesman from severe weather there is a glazed sash which may be housed by sliding downward to a pocket.

The other two designs are for the smaller and movable news-stands which are frequently required on narrow and crowded sidewalks. There is no reason why newspaper booths should be such eyesores as they generally are—and a well-painted, dignified booth will be more attractive to the news-man's customers than any other type of stand.

## City Taxes and the Dollar

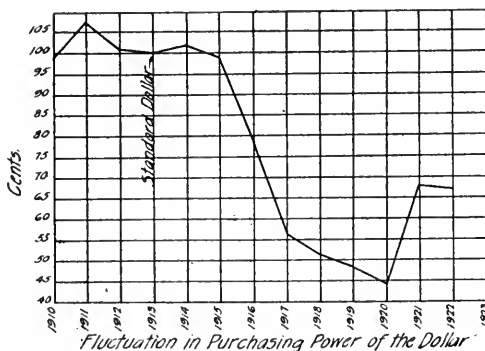
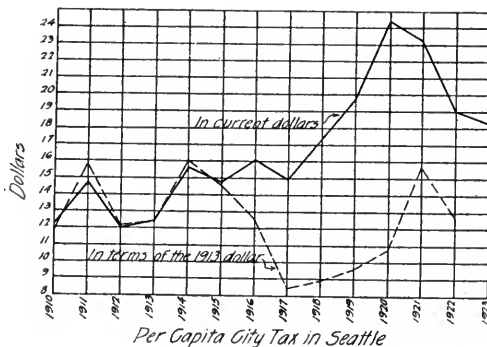
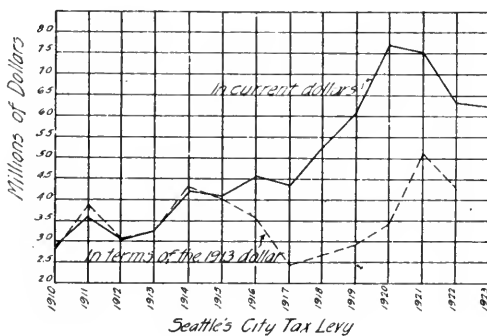
By P. M. Fogg

**F**LUCTUATIONS in the purchasing value of the dollar during the last nine years have perhaps been less philosophically accepted by the average citizen in their effect on his city taxes than in all other items of his annual budget. He became accustomed to the rise in prices of the thousand-and-one commodities of commerce, for he saw labor and material costs in his own business leap with astonishing bounds. He understood that this condition must affect everything which money purchases. But because many of the services for which taxes are paid are a more or less intangible quantity, the taxpayer seldom analyses this matter carefully. Complaints of high tax levies have been insistent, and political propagandists have not been slow to enlarge upon the theme with considerable loose talk and misleading publicity.

There is the case of Seattle, for example. Although young in years, this municipality has had no dearth of lurid political history. In both population and commerce it has progressed in vigorous fashion; many of its more novel activities have been widely heralded.

Viewed superficially, the costs of government have increased here, as elsewhere. It has been claimed that the city's tax rate is inordinately high; that new industries are being excluded because of this; that the property owner is staggering beneath his burdens.

Whether or not a city's tax rate is higher than it should be depends upon the extent of service rendered by the municipal government to its citizens, and upon many other factors, not within the scope of this discussion. It may be worth while, how-





1. Loading snow from windrows, the common practice with Barber-Greene Snow Loaders.
2. Showing how the Barber-Greene, in extremely cold weather that would discourage many shovel men, handles snow that is almost entirely ice.
3. Showing the Barber-Greene handling large lumps.
4. Truck loaded by a Barber-Greene—higher than shovelers could throw.
5. In Albany a Barber-Greene loaded 45 trucks an hour last winter.



## Here are the reasons in figures why cities are planning their snow battle now

*Loading snow with shovel men and trucks:*

Loading cost per cu.yd.	\$0.186
Hauling " " "	.232
Overhead " " "	.037
Total " " "	<u>\$0.455</u>

*Loading snow with Barber-Greenes and trucks:*

Loading cost per cu.yd.	\$0.045
Hauling " " "	.158
Overhead " " "	.007
Total " " "	<u>\$0.210</u>

*The saving effected by the Barber-Greene*

\$0.141
.074
.030
<u>\$0.245</u>

**T**HE Barber-Greene's demonstrated saving is more than 50% of the cost of hauling away snow by hand shoveling methods.

With 5-yard trucks this means a saving of \$1.225 per load.

In the removal of at least 12,000 yards of snow, a Barber-Greene can save \$2,940. More important is the saving to busi-

ness and industry, because the swift work of the Barber-Greene either prevents or shortens the tie-ups due to heavy snow.

The detailed explanation of snow fighting places of various cities is contained in a book "Mechanical Snow Handling" just off the press. We will be glad to send you a copy free.

BARBER-GREENE COMPANY—Representatives in 33 Cities—515 W. Park Avenue, Aurora, Illinois

# BARBER GREENE

SNOW LOADERS

ever, to analyze the situation in Seattle, and determine whether the tax rate has been increased out of proportion to the lowered value of the dollar. John Lamb, Assistant Superintendent of the municipal Water Department, in investigating the matter of local taxation, has cast illumination of a very interesting character upon the subject. His data are shown in the accompanying charts.

The estimated population of the city for each year between 1910 and 1923 was computed by assuming equal yearly increases, in accordance with the report of the 1910 census and that of 1920. As a basis for the purchasing power of the dollar, the year 1913 was taken as standard. The annual tax levy by years is indicated, both as actually assessed and also in terms of the 1913 dollar. Finally, the levy for each year is shown on a per capita basis, both in cur-

rent and in standard dollars.

The charts clearly indicate that the per capita rates of taxation for the years 1921 and 1922 compare very favorably with those of 1911 and 1912, viewed from the standpoint of the dollar's true value. The lowered rates for 1917 to 1920 inclusive are due to the marked suspension in public improvement work during the war and immediately following. Results for the year 1923 cannot be charted until after its close, when the dollar's value has been determined, but the per capita levy expressed in current dollars, viz., \$18.32, is less than that of 1922 by the comfortable margin of \$.73.

Broadly speaking, then, the average citizen in Seattle is not being taxed by the city more heavily at the present time than he was a decade ago, if the real value of money is considered, as it should be, in such an analysis.

## To See Just Where the City Stands

By Malcolm H. Eddy

**I**N the municipal election this spring Rock Island, Ill., placed an administration of business men in power. Walter A. Rosenfield, head of two metal products manufactories in Rock Island, was elected mayor. Applying the methods of management demanded for efficient operation of his own plants, Mr. Rosenfield found a number of doubts and questions forming in his mind in relation to Rock Island's financial status. Were Rock Island city officials underpaid, or overpaid, according to the way other cities valued the services of their officials? Was the city actually a loser on paving contracts, as some critics claimed? Were license fees what they should be? Were the city's methods of finance similar to, or different from, those of other cities? Where does the city stand, as a business concern, in comparison with others which have similar conditions to deal with?—was the question of the hour when the inventory reached that point in its progress. Accordingly, the Mayor did what is the stereotyped thing among big commercial organizations, but not such a common thing among municipalities—he resorted to the questionnaire.

The table on page 299 gives some of the information received from 22 cities, of from 17,000 to 76,000 population, all in the Middle West.

The answers indicated that cities in this section find it advisable to maintain one policeman to each 1,000 or less residents, and that, accordingly, Rock Island was underpoliced in comparison with other cities of similar population. This answered one cry of the critics, affirmatively.

It was something of a surprise to learn that asphaltic concrete pavement is installed in Rock Island at a smaller cost, on the average, than in the rest of the 22 cities. It costs \$2.74 the square yard, with a 2-inch wearing surface. On the other hand, for 4-inch brick and 8-inch grading, on straight brick jobs, Rock Island pays over the average, the cost to this city being \$4.15 a square yard.

There is a wide divergence in salary figures for mayors. The average among the 22 cities is \$3,032. The tendency is to pay aldermen \$5 to \$10 per meeting, and commissioners \$1,800 to \$3,500 a year, depending quite generally on population.

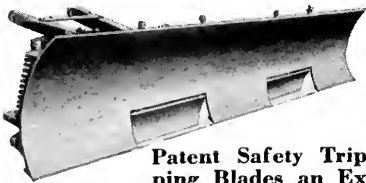


# Prepare Now For Next Winter's S n o w s

One of the City of Cleveland's fleet of Baker Auto Truck Snow Plows. Mr. J. M. Morris, Deputy Commissioner, Department of Public Service for the City of Cleveland, writes:

"I am glad to state that the Baker Plows recently purchased from you performed very creditably during the several recent snow storms here and no loss of time was occasioned by the plows being damaged by elevations in the streets.

The Trip Blade enabled us to secure a continuous operation of our plows without which we would have been seriously hampered."



**Patent Safety Tripping Blades an Exclusive Baker Feature.**

**Blades trip back when meeting obstruction and prevent injury to plow or truck. Insist on this protection.**

*We also make Snow Plows for Leading Makes of Tractors*

## **BAKER** **AUTO TRUCK** **SNOW PLOW**

Prepare by installing the right kind of snow moving equipment—the kind that has stood the test for years. You can buy Snow Insurance cheaply. The many exclusive features of Baker Auto Truck Snow Plows insure you the right kind of protection against snow storms. They fit on all standard motor trucks without drilling holes.

They are built to "stand the gaff." Adjustable shoes — safety tripping blades — scientifically curved moldboard — positive lifting device — are outstanding features that make the Baker Auto Truck Snow Plow supreme.

Leading State Highway Departments, large cities, counties, public institutions and large industrial plants use Baker Snow Plows. You'll find them in every state in the Snow Belt. Write for Complete Catalog, Now.

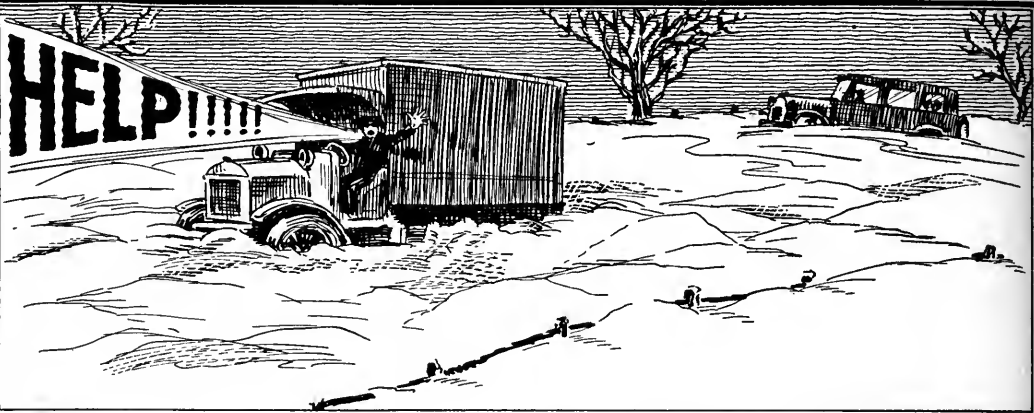
## **THE BAKER MANUFACTURING COMPANY**

**503 STANFORD AVENUE, SPRINGFIELD, ILL.**

DATA FROM TWENTY-TWO CITIES, SECURED BY MAYOR ROSENFELD, OF ROCK ISLAND, ILL.

City .....	Free- port, Ill. 19,669	Kanka- kee, Ill. 16,753	Spring- field, Ill. 59,183	Bloom- ington, Ill. 28,725	Ottu- mwa, Ill. 23,003	Daven- port, Ia. 56,727	Clinton, Ia. 24,151	Cedar Rapids, Ia. 45,566	Water- loo, Ia. 36,230	Moline, Ill. 30,734	Rock- ford, Ill. 65,651
Population .....											
Salary of Mayor .....	\$2,400.00	\$1,800.00	\$4,000.00	\$2,500.00	\$2,120.00	\$2,500.00	\$1,000.00	\$3,000.00	\$3,600.00	\$2,500.00	\$4,500.00
" " City Clerk .....	2,200.00	1,200.00	1,920.00	2,100.00	1,640.00	3,000.00	1,800.00	3,000.00	2,700.00	2,000.00	3,600.00
" " City Engineer .....	2,400.00	1,800.00	2,100.00	2,300.00	2,400.00	3,000.00	3,000.00	3,000.00	3,200.00	2,500.00	3,000.00
" " Purchasing Agent .....				2,400.00		2,400.00		2,400.00			
" " Street Commissioners .....		1,800.00	2,100.00	1,900.00	1,800.00	2,100.00		1,920.00	2,200.00	2,000.00	
" " Supt. of Water Works .....			3,000.00	3,000.00				3,600.00	3,420.00	2,000.00	3,600.00
" " Plumbing Inspector .....		900.00	1,980.00	1,800.00		2,200.00		1,920.00	2,500.00	2,000.00	2,500.00
" " City Attorney .....	1,500.00	840.00	2,700.00	2,250.00	1,800.00	3,300.00	1,000.00	3,000.00	2,400.00	1,800.00	2,000.00
" " City Physician .....			3,000.00	3,500.00	984.00	1,200.00		1,200.00		600.00	
" " Chief of Police .....	1,980.00	1,800.00	2,400.00	2,100.00	1,640.00	2,310.00	1,920.00	2,220.00	2,160.00	2,000.00	3,000.00
" " Chief of Fire Dept. ....	1,980.00	1,800.00	2,400.00	2,040.00	1,640.00	2,310.00	2,200.00	2,220.00	2,160.00	2,000.00	3,000.00
" " Patrolmen .....	1,500.00	1,440.00	1,500.00	1,440.00	1,418.00	1,680.00		1,500.00	1,640.00	1,500.00	1,500.00
" " Firemen .....	1,560.00	1,440.00	1,500.00	1,440.00	1,368.00	1,500 to 1,830.00	148.50	1,500.00	1,640.00	1,500.00	1,500.00
" " Electrical Inspector .....	2,160.00	900.00	1,980.00	1,800.00		2,500.00		1,920.00	2,200.00	600.00	2,000.00
" " Health Officer .....	1,200.00	1,200.00	1,500.00	1,380.00	1,416.00	1,800.00		1,920.00	600.00	2,000.00	3,500.00
" " City Chemist .....								1,200.00		2,000.00	2,000.00
Number of Fire Stations .....	3	2	7	1	2	8	4	6	4	4	6
Number of Policemen .....	13	14	60	29	11	63	16	31	34	21	63
Number of Firemen .....	26	14	37	32	15	70	26	57	43	28	83
How many are Detectives? .....		1	9	4	1	6	1	4	3	1	8
Motorcycle Police .....	1		1	1	2	1	1	4	2	1	
Do you license soft drink parlors? ..	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
What is the Fee? .....		\$5.00	\$16.00			\$10.00				\$5.00	\$2.00
What do you pay sq. yd. asphaltic concrete? .....			3.70	4.00	3.62	2.99	3.10		2.57	2.92	
What do you pay sq. yd. Brick? ..		3.75	4.20	Yes	Yes	3.60		3.64		3.75	
Does this include grading? .....		No	Yes			No		No	No	No	
If separate, what is average cost? ..		.80				.75		1.00			
Who finally authorizes purchases ..	Chair- man resp. Depts.	Purch. Comm. 3-Counc- il	Commis- sioner of Finance	Comp- troller	Heads of Depart- ments		Heads of Depart- ments	Auditor	Mayor and Council	Mayor	City Council

City .....	Aurora, Ill. 36,397	Joliet, Ill. 38,442	Quincy, Ill. 35,978	Beloit, Wis. 21,284	Peoria, Ill. 76,121	Burling- ton, Ia. 24,057	Decatur Ill. 43,818	Logans- port, Ind. 21,626	Madison, Wis. 38,378	South Bend, Ind. 70,983	Rock Island, Ill. 35,171	Average
Population .....												
Salary of Mayor .....	\$3,500.00	\$4,000.00	\$3,000.00	\$800.00	\$6,000.00	\$2,500.00	\$4,000.00	\$2,000.00	\$2,000.00	\$5,000.00	\$3,000.00	\$3,032.00
" " City Clerk .....		2,400.00	2,000.00	2,400.00	2,500.00	1,500.00	2,160.00	1,650.00	2,400.00	2,400.00	2,700.00	2,250.00
" " City Engineer .....	3,000.00	2,846.00	3,600.00	3,500.00	2,700.00	1,800.00	3,100.00	1,650.00	5,500.00	3,000.00	1,680.00	2,778.18
" " Purchasing Agent .....		2,200.00				1,500.00					1,800.00	2,116.66
" " Street Commissioners .....		2,400.00	1,800.00	2,100.00	2,500.00		2,160.00	1,800.00	3,000.00	2,100.00	1,800.00	2,082.35
" " Supt. of Water Works .....		2,400.00	4,500.00				2,160.00	1,800.00	4,800.00	3,000.00	2,000.00	3,021.00
" " Plumbing Inspector .....	1,680.00	2,400.00	1,380.00	2,100.00	1,800.00	1,800.00	2,160.00		2,000.00	2,000.00	1,640.00	1,930.00
" " City Attorney .....	3,000.00	2,846.25	1,000.00	1,000.00	2,000.00	5,000.00	3,300.00	1,500.00	2,500.00	3,000.00	1,800.00	2,252.00
" " City Physician .....					1,200.00	500.00				600.00	1,200.00	1,400.00
" " Chief of Police .....	2,460.00	2,501.25	1,800.00	2,400.00	3,600.00	1,800.00	2,160.00	1,920.00	2,400.00	3,000.00	1,860.00	2,198.00
" " Chief of Fire Dept. ....	2,360.00	2,501.25	1,800.00	2,400.00	3,000.00		2,160.00	1,680.00	2,400.00	3,000.00	1,800.00	2,260.00
" " Patrolmen .....	1,680.00	1,552.50	1,584.00	1,800.00	1,500.00	2,496.00	1,620.00	1,560.00	1,720.00	1,920.00	1,440.00	1,627.00
" " Firemen .....	1,680.00	1,552.50	1,582.00	1,800.00	1,380.00	2,496.00	1,620.00	1,320.00	1,720.00	1,920.00	1,500.00	1,612.00
" " Electrical Inspector .....	2,160.00	2,400.00	1,500.00	1,800.00			1,860.00		2,100.00	1,800.00	1,640.00	1,840.00
" " Health Officer .....	500.00	2,400.00	4,500.00	3,360.00	1,200.00	1,200.00	2,160.00	1,500.00	5,750.00	1,600.00	1,800.00	2,024.00
" " City Chemist .....	3,000.00		2,000.00	1,920.00	1,200.00			1,800.00	2,400.00	2,500.00	1,800.00	1,982.00
Number of Fire Stations .....	5	5	8	2	10	4	4	5	4	9	6	5
Number of Policemen .....	35	35	36	15	92	19	25	23	42	95	22	36
Number of Firemen .....	36	29	61	24	99	17	45	33	52	120	34	45
How many are Detectives? .....	4		3	1	8		3		2		2	4
Motorcycle Police .....	2	3	1	1	3	2	1	1	2		2	2
Do you license soft drink parlors ..	Yes	Yes	Yes	Yes	Yes		No	No	Yes	No	Yes	13 Yes 7 No
What is the Fee? .....	\$5.00		\$5.00	\$5.00	\$15.00				\$5.00		\$5.00	\$7.00
What do you pay sq. yd. asphaltic concrete? .....	\$2.31			\$1.93				\$3.20		\$2.36	a-\$2.74 b-4 in	\$2.78
What do you pay sq. yd. Brick? ..	4.93					\$3.50					b-4 in	3.85
Does this include grading? .....	Yes			No		No		Yes		No	No	9 no 5 yes
If separate, what is average cost? ..				.60		.50					.90	.84
Who finally authorizes purchases ..	Com- mittee	Heads of Depart- ments	Heads of Depart- ments		Heads of Depart- ments	Council	Comm. Ac- counts	Board Public Works	Com- mittee	Each Depart- ment	a-includ grading b-4 in ch Brick and 8 in grad ng.	as 8 ineh ch Brick and 8 ineh grad ng.



## -AND HELP CAME IN THE FORM OF A CHAMPION SNOW PLOW



*Champion Snow Plow Removing Snow from a Country Highway*

The Champion Snow Plow is a heavy steel blade with an arrangement for raising and lowering and for right or left hand cutting. It can be easily and quickly attached to a motor truck or tractor.

The Champion is the last word in appliances for quickly and economically removing snow from country roads or city streets.

Ask for catalog giving interesting information regarding the use of Champion Snow Plows.

BOSTON · MASS.  
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CHICAGO · ILL.  
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*The*  
**GOOD ROADS  
MACHINERY CO.**  
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KENNETT SQUARE, PA.

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AND  
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# Mayors' Salaries in Small Municipalities

AS stated last month, more than a thousand mayors have recently furnished, at the request of THE AMERICAN CITY, information as to their annual salaries. The figures from cities of 5,000 population or over were published in the August number. In the following tables will be found the annual salary of the mayors from whom figures were received for the smaller municipalities. A dash in the salary column indicates that no salary whatever is paid.

## 2,500 to 4,999 POPULATION

City	Annual Salary	City	Annual Salary
Abbeville, S. C.	\$900	Ely, Minn.	\$300
Alva, Okla.	300	Eufula, Ala.	600
Anadarko, Okla.	600	Fairbury, Ill.	100
Angola, Ind.	250	Falls City, Nebr.	200
Anthony, Kans.	300	Farmington, Ill.	200
Attalla, Ala.	780	Florence, Colo.	120
Augusta, Kans.	1	Fordyce, Ark.	300
Aurora, Ind.	600	Fort Kent, Me.	800
Aurora, Nebr.	150	Foxboro, Mass.	100
Belle Plains, Ia.	600	Franklin, Ind.	300
Beverly City, N. J.	100	Franklin, Tenn.	100
Big Spring, Tex.	90	Fredericktown, Mo.	12
Big Stone Gap, Va.	900	Fulton, Ky.	300
Blackfoot, Ida.	390	Galena, Ill.	400
Blair, Nebr.	200	Gilroy, Calif.	—
Boonville, Ind.	200	Glasgow, Ky.	75
Boyetown, Pa.	100	Glendale, Ariz.	—
Boyne City, Mich.	50	Goderick, Ontario.	—
Brighton, Colo.	200	Greenville, Tenn.	50
Brinkley, Ark.	60	Greybull, Wyo.	100
Broken Boro, Nebr.	200	Grove City, Pa.	50
Brownsville, Tenn.	600	Hampton, Ia.	150
Buena Vista, Va.	600	Harrodsburg, Ky.	100
Burlington, Wis.	*10	Hartshorne, Okla.	300
Butler, N. J.	—	Hearne, Tex.	24
Cameron, Mo.	100	Henrietta, Tex.	48
Camerton, Tex.	300	Hesperia, Ontario.	—
Canastota, N. Y.	4	Hiawatha, Kans.	300
Canon City, Colo.	180	Hobart, Ind.	500
Canton, N. C.	150	Holtan, Kans.	300
Cardin, Okla.	—	Houghton, Mich.	60
Carlstadt, N. J.	—	Hubbard, O.	720
Carrollton, Mo.	150	Hudson, Wis.	125
Carterville, Ill.	500	Huntington Park, Calif.	300
Charleston, Miss.	1,800	Idabel, Okla.	1,500
Claremore, Okla.	60	Jacksonville, Tex.	300
Clarksville, Tex.	100	Jennings, La.	900
Clinton, S. C.	1,200	Kaufman, Tex.	50
Columbia City, Ind.	300	Keyport, N. J.	—
Columbia, Miss.	600	Kings Mountain, N. C.	200
Commerce, Okla.	50	Knoxville, Ia.	300
Cooperstown, N. Y.	300	Kutztown, Pa.	30
Covington, Tenn.	600	Lake Forest, Ill.	—
Cresco, Ia.	300	Lanette, Ala.	400
Cynthiana, Ky.	200	LaSalle, N. Y.	300
Dalhart, Tex.	—	Las Vegas, N. Mex.	—
Dawson, Ga.	500	Lawrenceburg, Ind.	600
Decatur, Ala.	1,000	Lebanon, Ky.	150
Decatur, Ind.	2,000	Leesville, La.	300
DeLeon, Tex.	—	Lexington, Va.	720
Delta, Colo.	1,200	Lincolnton, N. C.	100
Dinuba, Calif.	—	Lisbon, O.	250
Dunn, N. C.	300	Louisiana, Mo.	300
Earlington, Ky.	50	Lowville, N. Y.	—
East Aurora, N. Y.	—	Luverne, Minn.	50
East Stroudsburg, Pa.	100	Lykens, Pa.	150
Florida, Ia.	100	Madison, Ill.	1,000
Elizabethtown, Pa.	25	Madison, S. D.	800
Elk City, Okla.	1	Malad, Idaho.	—
Ellensburg, Wash.	—	Manchester, Ga.	350

City	Annual Salary	City	Annual Salary
Manchester, Ia.	\$ 50	Pulaski, Tenn.	\$ 48
Manhattan, N. Dak.	300	Quakertown, Pa.	50
Mannington, W. Va.	600	Quannah, Tex.	300
Marshall, Mich.	50	Rawlins, Wyo.	50
Marshall, Minn.	100	Rayne, La.	810
Martinsville, Va.	1,200	Redfield, S. Dak.	310
Marysville, Kans.	2	Reynoldsville, Pa.	—
Marysville, O.	300	Roseburg, Ore.	—
Mayfield, Pa.	400	Richland Center, Wis.	300
Mayville, Wis.	300	Richwood, W. Va.	50
McCook, Nebr.	150	Rockport, Ind.	45
Merced, Calif.	240	St. Charles, Ill.	600
Metuchen, N. J.	—	St. Peter, Minn.	100
Mexia, Tex.	60	Salem, Ill.	270
Middleport, O.	300	Salinas, Calif.	600
Mingo Junction, O.	300	Sandpoint, Ida.	150
Mission, Tex.	175	Sauk Center, Minn.	—
Montevideo, Minn.	10	Sebring, O.	400
Mooresville, N. C.	300	Shelbyville, Ky.	240
Morrisville, Pa.	—	Shippensburg, Pa.	—
Moscow, Ida.	180	South Haven, Mich.	50
Mt. Airy, N. C.	500	Southwest Greensburg, Pa.	50
Mt. Morris, N. Y.	—	Spencer, N. C.	25
Mt. Sterling, Ky.	600	Springdale, Pa.	200
Nacogdoches, Tex.	360	Starkville, Miss.	900
Neodesha, Kans.	300	Superior, Nebr.	200
Neosho, Mo.	240	Tarboro, N. C.	750
New Albany, Miss.	1,200	Tenafly, N. J.	—
New Braunfels, Tex.	1,200	Thief River Falls, Minn.	100
New Hampton, Ia.	100	Toccoa, Ga.	300
Newport, Tenn.	—	Union City, Ind.	400
Northfield, Minn.	—	Union City, Tenn.	300
Northwesternland, Pa.	60	Van Buren, Me.	1,200
Ocala, Fla.	180	Wahpeton, N. Dak.	300
Oroville, Calif.	—	Washington, Ia.	600
Osceola, Ia.	104	Waurika, Okla.	—
Otsego, Mich.	100	Waynesburg, Pa.	600
Oxford, N. C.	1,200	Weiser, Idaho.	180
Pacific Grove, Calif.	—	Wellsburg, W. Va.	500
Park Falls, Wis.	300	Westernport, Md.	500
Perry, N. Y.	—	West Minneapolis, Minn.	10
Pocahontas, Va.	60	West Plains, Mo.	100
Port Townsend, Wash.	—	Whitewater, Wis.	200
Port Washington, Wis.	1,000	Wildwood, N. J.	1,500
Poteau, Okla.	600	Williston, N. Dak.	480
Prairie du Chien, Wis.	200	Worthington, Minn.	100
Preston, Ida.	24	Yuma, Ariz.	150
Princeton, Ky.	75		

\* Per meeting.

## LESS THAN 2,500 POPULATION

City	Annual Salary	City	Annual Salary
Ada, O.	\$200	Bamberg, S. C.	\$200
Adrian, Minn.	50	Bardstown, Ky.	75
Ainsworth, Nebr.	25	Barrington, Ill.	50
Aitkin, Minn.	10	Barron, Wis.	400
Akron, Colo.	—	Bayard, Nebr.	150
Alamogordo, N. Mex.	—	Beattyville, Ky.	75
Albia, Ia.	600	Belhaven, N. C.	120
Alliston, Ontario.	—	Bellaire, Mich.	—
Altoona, Ala.	300	Belle Plaine, Minn.	50
Altoona, Kans.	1	Bellevue, Ia.	12
Alvin, Tex.	60	Belmont, N. Y.	—
Amboy, Ill.	200	Ben Avon, Pa.	—
Amherst, O.	400	Berea, Ky.	50
Andrews, N. C.	300	Bergholz, O.	60
Angleton, Tex.	—	Bessemer City, N. C.	100
Arcanum, O.	200	Big Timber, Mont.	200
Archbold, O.	75	Blackshear, Ga.	150
Artesia, N. Mex.	—	Bladell, N. Y.	120
Asheville, O.	100	Bloomfield, Nebr.	100
Aspen, Colo.	360	Bloomington, N. J.	—
Athens, N. Y.	—	Bloomington, Wis.	—
Atkins, Ark.	18	Blue Rapids, Kans.	—
August, Wis.	25	Boaz, Ala.	500
Avoca, N. Y.	15	Bonifay, Fla.	90
Baldwin, Kans.	60		

*Avery One-Man Road Razer removing snow from city streets. Note how it scrapes clean, right down to the bricks. Street dries quickly.*



*Avery Road Razer shaving a rough unpaved street smooth.*



## The Great Double Duty Road Machine

### *Removes Snow—Maintains Unpaved Roads*

Here's a machine that can be kept on the job the year around. It shaves the roughest unpaved roads and streets as smooth as a city pavement; doing the work faster, better, at lower cost than possible by any other method. And it can be used just as successfully as a snow remover. This machine is the Avery One-Man Road Razer—the most practical and successful piece of machinery yet developed for country-road and unpaved street maintenance work.

Mr. E. I. Buchanan, Street Commissioner of Salina, Kans., wrote: "We liked our Avery Road Razer for working unpaved streets. Now we have found another use for it—cleaning snow off our streets. We find it a great machine for cleaning off the snow. It does it so nice and clean that the streets are dry in a short time.

One man can clean off miles of streets in a day after a heavy snow, and at very little expense. It's the best snow machine we ever saw."

Wherever introduced, this machine has created a genuine sensation. One man operates it—turns the machine completely around in its own tracks—goes forward or back, and from his seat raises or lowers the long, flexible three-section blade which either fits or makes any crown or surface of the road. The power, flexibility and ease of handling this machine is a never failing source of wonderment to those interested in modern road building equipment.

For lower costs and better work build your roads with the new and improved Avery Tractors. The Ten-Ton Road Roller with power scarifier is an ideal machine for street and road work. Then keep them in condition, summer and winter with the Avery One Man Road Razer. Write now for prices and full particulars.

**EVERY COMPANY, 223 Iowa St., Peoria, Ill.**

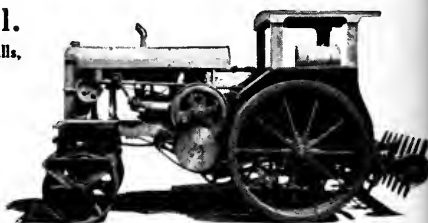
*Branch Houses:* Madison, Fargo, Omaha, Minneapolis, Grand Forks, Sioux Falls, Aberdeen, Billings, Lincoln, Sidney, Nebr., Des Moines, Indianapolis, Columbus, Kansas City, Wichita, Salina, Stuttgart and Sacramento

*Distributors:* Avery Company of Texas; Dallas, Amarillo and Beaumont, Texas

*Also Other Principal Machinery Centers*

# AVERY

**Road-Building, Maintenance and Hauling Machinery**



Avery 10-Ton Road Roller equipped with Power-Scarifier—the last word in road-building. It builds, rolls and scarifies your roads or streets at the minimum cost.

City	Annual Salary	City	Annual Salary	City	Annual Salary	City	Annual Salary
Boonsboro, Md.	\$ 50	Eldon, Ia.	\$100	Iowa Park, Tex.	—	Monticello, N. Y.	—
Boscobel, Wis.	2,500	Elkton, Ky.	75	Itasca, Tex.	\$ 50	Montoursville, Pa.	—
Brady, Tex.	72	Ellendale, N. Dak.	24	Jackson, Ga.	300	Montrose, Pa.	\$ 10
Brandon, Vt.	100	Elma, Wash.	—	Jefferson, Ga.	200	Mora, Minn.	10
Breckenridge, Minn.	—	Elmwood, Ill.	200	Jefferson, O.	75	Morehead, Ky.	60
Breckenridge, Tex.	1,200	Elmwood Park, Ill.	500	Jesup, Ga.	200	Moroni, Utah.	80
Brevard, N. C.	24	Elroy, Wis.	50	Jewell, Ia.	50	Mosinee, Wis.	200
Bronson, Mich.	25	England, Ark.	—	Jonesboro, La.	120	Mt. Gilead, O.	180
Buena Vista, Colo.	—	Enterprise, Ore.	—	Jonesville, La.	—	Mt. Holly, N. C.	50
Buhl, Ida.	50	Escalante, Utah.	30	Jonesville, S. C.	200	Mt. Holly Springs,	—
Buhl, Minn.	100	Eufaula, Okla.	100	Jordan, Minn.	10	Pa.	50
Burnside, Ky.	75	Eureka, Ill.	100	Jordan, N. Y.	25	Mt. Joy, Pa.	—
Cambridge, N. Y.	—	Eureka, Mont.	240	Kennewick, Wash.	—	Mt. Pulaski, Ill.	60
Camrose, Alberta.	—	Fallon, Nev.	300	Kenova, W. Va.	100	Mt. Rainier, Md.	—
Canajoharie, N. Y.	—	Falmouth, Ky.	50	Kent, Wash.	—	Napoleonville, La.	50
Canota, N. Dak.	100	Farmersville, Tex.	200	Keosauqua, Ia.	12	Nashville, Ill.	100
Cape Vincent, N.Y.	16	Farmington, Ia.	100	Kesauqua, Ia.	40	Nashua, Ia.	—
Capitol Heights,	—	Farmington, Minn.	10	Kimball, S. Dak.	—	Navarre, O.	120
Mo.	—	Fayette City, Pa.	Fees	LaGrange, Tex.	180	Neillsville, Wis.	200
Cartersville, Mo.	20	Fennimore, Wis.	100	L a k e Preston,	—	Neligh, Nebr.	75
Casey, Ill.	25	Flandreau, S. Dak.	200	S. Dak.	50	Nescopeck, Pa.	25
Cass City, Mich.	—	Fleetwood, Pa.	25	Lancaster, Ky.	75	New Berlin, N. Y.	—
Cattaraugus, N. Y.	150	Floresville, Tex.	—	Lancaster, Mo.	25	New Bremen, O.	200
Cedar City, Utah.	200	Forneft, Nebr.	24	Lancaster, Tex.	18	New Concord, O.	50
Cedarville, O.	150	Fort Benton, Mont.	240	Lander, Wyo.	50	New London, Ia.	25
Central City, Nebr.	200	Fort Des Moines,	—	L'Anse, Mich.	25	New Paltz, N. Y.	—
Centralia, Pa.	200	Ia.	1	LaPlata, Mo.	20	New Paris, O.	24
Ceredo, W. Va.	25	Fort Meade, Fla.	—	LaPorte City, Ia.	100	New Prague, Minn.	25
Chadbourne, N. C.	100	Fort Payne, Ala.	100	Leesburg, Va.	100	New Providence,	—
Chappell, Nebr.	400	Fort Recovery, O.	72	Leland, Miss.	1,200	N. J.	—
Chardon, O.	24	Fowlerville, Mich.	25	Lemmon, S. Dak.	200	N e w Rockford,	—
Chase City, Va.	250	Fox Lake, Wis.	50	Leslie, Mich.	25	N. Dak.	120
Chetek, Wis.	25	Franklin, Va.	75	Lewistown, Ill.	50	New Smyrna, Fla.	—
Chillicothe, Ill.	12	Friendship, N. Y.	—	Lewistown, Utah.	57.50	Nixon, Tex.	60
Chillicothe, Tex.	240	Fruita, Colo.	—	Libby, Mont.	1	Nora Springs, Ia.	12
Chula Vista, Calif.	—	Fulton, Ill.	100	Liberty, N. Y.	—	Oakes, N. Dak.	60
Citronelle, Ala.	50	Galesville, Wis.	50	Lidgerwood, N. Dak.	50	Oconto Falls, Wis.	75
Clay Center, Nebr.	50	Garland, Tex.	—	Ligonier, Ind.	100	Oilton, Okla.	300
Clayton, Ill.	60	Geary, Okla.	100	Lilly, Pa.	144	Onawa, Ia.	50
Clayton, N. J.	—	Geneva, Nebr.	200	Linerville, Ala.	600	O'Neill, Nebr.	75
Clayton, N. Y.	—	Genoa, Nebr.	1	Lisbon, N. Dak.	180	Opp, Ala.	360
Clayton, N. C.	400	Genoa, O.	50	Littleton, Colo.	75	Orange City, Ia.	50
Clinton, Ky.	75	Germantown, O.	200	Little Valley, N.Y.	100	Osage City, Kans.	—
Clinton, N. C.	500	Gibsonville, N. C.	—	Livingston, Ill.	48	Osceola, Nebr.	—
Clovis, Calif.	—	Gilner, Tex.	300	Livingston, Tenn.	100	Ottawa, O.	200
Cobleskill, N. Y.	—	Glendale, O.	250	Lodi, O.	100	Owen, Wis.	750
Cokesburg, Pa.	—	Glenwood Springs,	—	Lonaconing, Md.	50	Pagosa Springs,	—
Colchester, Conn.	25	Colo.	100	Long Prairie, Minn.	15	Colo.	—
Coldwater, Kans.	1	Golconda, Ill.	24	Loudonville, O.	300	Paintsville, Ky.	—
Coleraine, Minn.	100	Golden, Colo.	—	Louisville, Colo.	75	Paris, Mo.	50
Colfax, Ia.	300	Gothenburg, Nebr.	100	Lovelock, Nev.	240	Park Rapids, Minn.	10
Collins, Miss.	240	Granite Falls, Minn.	—	Madella, Minn.	10	Parsons, W. Va.	50
Colonial Bach, Va.	300	Granite Falls, N. C.	12	Manassas, Va.	—	P a s s Christian,	—
Columbus, Wis.	—	Grantville, Utah.	50	Manson, Ia.	50	Miss.	300
Continental, O.	60	Greenfield, Mo.	25	Manteno, Ill.	24	Pawling, N. Y.	—
Cornelius, N. C.	600	Green River, Wyo.	50	Marengo, Ill.	100	Payette, Ida.	300
Corning, Ia.	100	Greensboro, Ga.	300	Marianna, Fla.	50	Pecatonia, Ill.	30
Cottonwood Falls,	—	Greensburg, Kans.	120	Marietta, Pa.	20	Peebles, O.	25
Kans.	12	Gridley, Ill.	50	Marion, Ala.	300	Pendleton, S. C.	175
Cottulla, Tex.	36	Gunnison, Utah.	50	Marion, Kans.	300	Philipsburg, Mont.	*5
Covina, Calif.	—	Guthrie Center, Ia.	15	Marion, Ky.	75	Picayune, Miss.	50
Cowles, Nebr.	—	Halstead, Kans.	120	Marionville, Mo.	20	Pikesville, Ky.	120
Craig, Colo.	120	Hamilton, N. Y.	—	Marksville, La.	180	Plano, Ill.	50
Crawford, Nebr.	50	Hardin, Mont.	600	Marlington, W. Va.	150	Pleasant Grove,	150
Cressona, Pa.	50	Harper, Kans.	1	Martinsville, Ill.	50	Utah.	—
Crews, Pa.	300	Harrisburg, Tex.	1	Mason, Mich.	50	Pocomoke City, Md.	75
Croton-on-Hudson,	—	Harrisonville, Mo.	150	Matawan, N. J.	—	Poplar, Mont.	100
N. Y.	—	Hartford, Ark.	24	Mauston, Wis.	100	Port Deposit, Md.	—
Cullman, Ala.	420	Hartington, Nebr.	200	McGehee, Ark.	240	Port Lavaca, Tex.	60
Curtis, Nebr.	100	Hartwell, Ga.	300	McGregor, Tex.	100	Princeton, Mo.	50
Dallas, Ga.	100	Hawley, Pa.	—	Mebane, N. C.	300	Princeton, Wis.	100
Dallas, N. C.	—	Haxton, Colo.	—	Mendham Boro,	—	Prophetstown, Ill.	104
Dallas City, Ill.	50	Haynesville, La.	1,200	N. J.	—	Punta Gorda, Fla.	—
Dardanelle, Ark.	—	Hayward, Wis.	—	Mendon, O.	50	Randolph, N. Y.	—
Davis, Okla.	48	Heber, Utah.	150	Meridian, Tex.	—	Randolph, Wis.	115
Deadwood, S. Dak.	100	Hebron, N. Dak.	75	Merkel, Tex.	300	Ravenna, Nebr.	200
Deepwater, Mo.	18	Hereford, Tex.	600	Midland Park,	—	Reed, Ark.	300
Del Norte, Colo.	—	Hicksville, O.	200	N. J.	—	Reed City, Mich.	36
Dermott, Ark.	300	Hico, Tex.	150	Milan, Tenn.	50	Reform, Ala.	600
Douglass, Wyo.	50	High Bridge, N. J.	—	Milbank, S. Dak.	*1	Renville, Minn.	—
Downs, Kans.	—	Holbrook, Ari.	—	Milford, Utah.	60	Richfield Springs,	—
Dows, Ia.	50	Holden, Mo.	50	Millen, Ga.	300	N. Y.	—
Doylestown, O.	50	Holgate, O.	125	Monroe, N. Y.	36	Rich Hill, Mo.	200
Dunlap, Ia.	12	Homer, Mich.	25	Monroe City, Mo.	200	Richmond, Utah	* 85
Dupo, Ill.	75	Houtzdale, Pa.	100	Montesano, Wash.	—	Richton, Miss.	300
Earlville, Ill.	50	Howard, Kans.	50	Montgomery, Mo.	50	Ridgeley, W. Va.	75
East Bangor, Pa.	—	Huntingdon, Tenn.	150	Montgomery, Pa.	—	Rigny, Ida.	150
Edgar, Nebr.	50	Huron, O.	200	Monticello, Ky.	75	Ripley, Miss.	12
Edmonds, Wash.	—	Illmo, Mo.	50			Rittman, O.	300
El Campo, Tex.	120						



## **“—best for all kinds of work—”**

“I have been operating several kinds of tractors for ten years, and I find the Best ‘Sixty’ is the best tractor on the market for all kinds of work, especially heavy duty,” writes the master mechanic\* of a Georgia road work contractor.  
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Before you purchase stock or power equipment, watch a Best “Sixty” or “Thirty” on nearby work that is similar to yours. A list of owners will gladly be sent on request. Ask for the 1923 Best Tractor Catalog also.

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# **BEST TRACTORS**

69-023

City	Annual Salary	City	Annual Salary	City	Annual Salary	City	Annual Salary
Ritzville, Wash. . .	—	Shakopee, Minn. . .	—	Steamboat Springs, Colo. . . . .	\$50	Wahoo, Nebr. . . .	\$150
Rockdale, Tex. . .	\$ 1	Sharon Hill, Pa. .	—	Stillwater, N. Y. .	—	Waitsburg, Wash. .	—
Rockvale, Colo. . .	84	Shiner, Tex. . . . .	\$24	Stockton, Kans. . .	50	Wake Forest, N. C.	300
Rosebud, Tex. . . .	—	Shreve, O. . . . .	40	Stuart, Ia. . . . .	50	Wamego, Kans. . .	—
Roseto, Pa. . . . .	40	Sierra Madre, Calif.	—	Sturgis, N. Dak. . .	1	Warrenton, Va. . .	150
Roseville, O. . . . .	150	Sioux Center, Ia. .	26	Sumner, Ill. . . . .	50	Washington, Ill. . .	50
Rossville, Ill. . . .	9	Sioux Rapids, Ia. .	50	Sumner, Wash. . . .	—	Waverly, Va. . . .	200
Royston, Ga. . . . .	150	Sloan, N. Y. . . . .	—	Sunnyside, Wash. .	—	Waynoka, Okla. . .	—
Runge, Tex. . . . .	120	Smethport, Pa. . .	50	Swanton, O. . . . .	—	West, Tex. . . . .	120
Rushville, Ill. . . .	100	Smithfield, N. C. .	39 1/2	Tamaroa, Ill. . . . .	12	West Alexandria, O. . . . .	75
St. Clairsville, O. .	200	Snydertown, Pa. . .	—	Taneytown, Md. . .	50	West Blocton, Ala.	180
Ste. Genevieve, Mo.	150	Sonora, Calif. . . .	—	Tarpon Springs, Fla. . . . .	—	West Cape May, N. J. . . . .	—
St. Martinsville, La.	900	South Beloit, Ill. .	50	Tawas City, Mich. .	25	Whiteville, N. C. . .	300
St. Marys, W. Va. . .	—	South Connellsville, Pa. . . . .	100	Tidioute, Pa. . . . .	—	Whitewright, Tex. .	1,800
St. Pauls, N. C. . .	—	South Sioux City, Nebr. . . . .	200	Timmons ville, S. C.	300	Wiggins, Miss. . . .	1
Salisbury, Mo. . . .	150	Sparta, Mich. . . . .	60	Timpon, Tex. . . . .	1	Windsor, Mo. . . . .	25
Saltsburg, Pa. . . .	20	Spearfish, S. Dak. .	1	Tippecanoe City, O.	300	Windsor, N. C. . . .	—
Sandstone, Minn. . .	10	Spencerport, N. Y. .	—	Torrington, Wyo. . .	50	Winter Park, Fla. . .	—
Sandusky, Mich. . .	—	Spencerville, O. . .	120	Townley, Ala. . . . .	100	Wolfe City, Tex. . .	60
Sandy, Utah . . . . .	60	Spring City, Tenn. .	100	Tyldall, S. Dak. . .	5	Woodburn, Pa. . . .	35
Sarasota, Fla. . . . .	*4	Springfield, Ky. . .	300	Union City, Mich. . .	25	Woodbriar, Ore. . .	*1.50
Saxton, Pa. . . . .	—	Spring Hope, N. C. .	300	Uniontown, Ky. . . .	75	York, Ala. . . . .	350
Sauk City, Wis. . . .	36	Spring Valley, Minn. . . . .	10	Valley, Nebr. . . . .	—	Zumbrota, Minn. . .	10
Savannab, Mo. . . .	50	Stanford, Ky. . . . .	75	Victoria, Va. . . . .	400		
Scalp Level, Pa. . .	120	Stanton, Nebr. . . .	75	Vincent, Ala. . . . .	50		
Sebastopol, Calif. .	50						
Seward, Nebr. . . .	50						

\*Per meeting.

## The Only Thing a City Has to Build Itself Upon

THE elements entering into the growth and development of a city are many and varied. Some of them are complex and hard to define. One factor, however, seems easy to understand. So apparently fundamental is it that it seems trite and too obvious to say that a city is built upon land; that the shape and conformation of that part of the earth's surface which constitutes its present and future site is a thing that vitally concerns it; and that as such the physical facts of this surface, or topography, should be studied and made matters of definite information. And yet, like many other obvious and fundamental things, this factor is often overlooked and slighted. Since land is the only thing a city has to build itself upon, it is logical that city plans should begin with an accurate knowledge of all land conditions. The assembling and recording of these facts is the purpose of the city topographic survey.\*

\* See articles on "The Topographic Map in City Planning," by Jefferson C. Grinnalds, in *THE AMERICAN CITY* for October, and November, 1921, pages 280-2 and 373-5; also "The Topographic Survey and Its Relation to City Engineering," February, 1922, pages 118-120.

Primarily the topographic survey furnishes information upon which to design a logical and correct street plan. Streets must connect different localities of varying importance, and they must do this by routes which are determined upon as being best from a study of all contributing factors. This means that they shall be located with regard to all requirements of traffic and topography, which also, in turn, implies that consideration be given to such matters as parks and playgrounds, residence and commercial districts, etc. Further need of the topographic map is felt in the designing and construction of sewers, water systems, and other public improvements. Many complaints and inquiries of a general nature are best answered by recourse to the map, which would otherwise require special surveys, and it is apparent that the one, complete survey is cheaper to obtain than the large and constantly increasing number of small, single-purpose ones.

—From a paper on "The City Topographic Survey in City Planning," by R. H. Randall, Topographic Engineer, Toledo, Ohio, before the Indiana City Planning Conference, 1923.

## The Child, the City, and the Playground

IN a city swarming with child life any provision for their perfectly natural activities, such as a few playgrounds, is regarded as showing exceptional benevolence.

Into what a hostile world does the little city child intrude with his happy smile, his desire to play, to run, to shout, and stretch his muscles vibrant with life! Here he is, millions of him, with millions of parents, but no city was built for his home. His position is very much like that of an ant in some great power-plant with

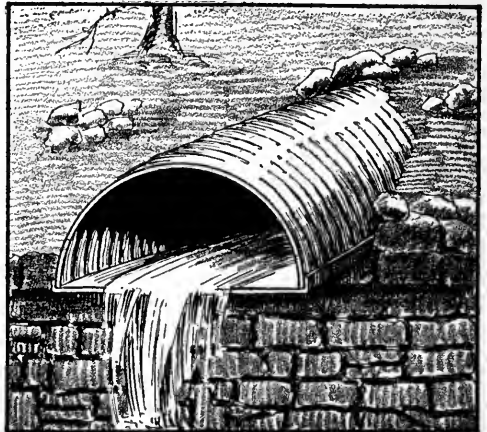
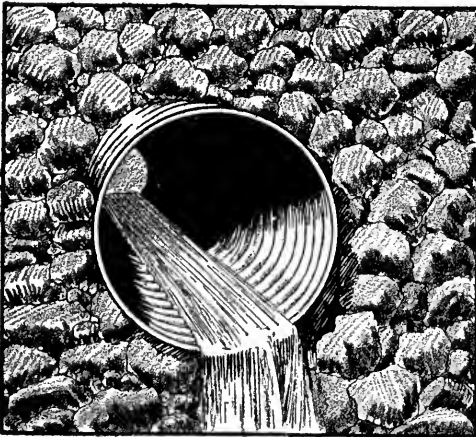
whirling wheels and roaring boilers. The ant does not endanger any of the wheels, therefore it may run about, but if it isn't careful it will be crushed. And if it is crushed? Well, a power-plant is a power-plant, not a playground. But the startling difference is that no ant ever built a power-house, while men and women, who were once children, and later fathers and mothers, build cities.

It is strange.

—New York Evening Post.

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The high quality of the material used and the adaptability of Newport round and half-round types of corrugated culvert pipe, to the needs of the road builders, make NEWPORT GENUINE OPEN-HEARTH IRON corrugated metal culverts the standard for road work everywhere. The iron has had the impurities eliminated to an extent not usually reached in any other grade of pure iron. This makes the culverts rust-resisting and the corrugations give them strength, thus assuring the road master or engineer that he is buying a high-grade culvert.



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# Municipal Responsibility for the Conservation of Vision

By Lewis H. Carris

Field Secretary, National Committee for the Prevention of Blindness

ONE cannot walk through the principal streets of even our smaller cities without having his sympathy aroused by the blind mendicant. Many others of our blind are not so much in evidence but need our sympathy just as much. The number of blind in any city may be roughly estimated as one in a thousand—not a large number in the aggregate, but large enough, and far too large when three facts are considered:

1. The amount of unhappiness caused to the victims, their relatives and friends.

2. The actual cost to the community through the transferring of the blind from the producing to the non-producing class.

3. From one-half to three-fourths of blindness can be prevented.

When we further consider the loss which any municipality sustains through seriously defective vision, in the light of the most conservative estimates of the number of persons so suffering, and that much of this is unnecessary, we can see the importance of the conservation of vision from a municipal standpoint.

Municipalities exist solely for the welfare of their citizens. Fire departments strive to prevent the spread of fire, police departments strive to prevent crime, school departments to remove ignorance. Blindness and seriously defective vision are also calamities largely preventable, and an effort should be made to eliminate them.

The limits of this article permit little more than a brief description of the possible activities of municipal agencies having some responsibility in the field of prevention and conservation.

*Public health service.*—Here rest the direct responsibilities of personal service and education. In the field of prevention of blindness, boards of health have probably rendered their most effective service in the prevention and cure of babies' sore eyes. Rare indeed are cases of ophthalmia neonatorum in many of our cities. Yet in others there are many violations of state and municipal laws providing for the use of prophylactics at birth and for early treatment after discovery. It is now considered a disgrace for a city to be responsible for a baby blind from sore eyes, since the cause and cure are so well known.

In the interests of the prevention and cure of contagious eye diseases the health department should provide immediate treatment for discovered cases under quarantine; should establish and enforce regulations prohibiting the use of common towels, and should give information to the public generally on the ways in which contagious eye diseases can be avoided or cured.

Health departments should promote the establishment of eye clinics both in municipal and private hospitals. The clinics must, to be effective, be under the direction of competent ophthalmologists, and must provide service both for the cure of eye diseases and for eye examinations to disclose defective vision.

The need in most cities for some provision for furnishing glasses to persons not able to buy them is an instance of the frequent necessity for cooperation between departments of health and the various private or public agencies for the administration of relief in cases of proved need.

## Assistance Available

The National Committee for the Prevention of Blindness will be glad to be of service to any community in the organization of a definite campaign for the prevention of blindness and the conservation of vision. The headquarters of the Committee are at 130 East 22nd Street, New York City.



*This street in York Village, Maine, was first treated with Tarvia in 1913.*



*A macadam road brought up to date. Main Street, Le Roy, New York—transformed by Tarvia during 1919 and 1920.*



*Columbia Avenue, Vandergrift, Pa., once an old brick street, was surfaced with Tarvia in 1914.*

## The Three Ages of Main Street—

What are the three ages of America's Main Streets? First, the Age of Mud and Dust—the age of the sprinkling cart—the age when spring thaws turned Main Street into a mud-hole.

Next, the Age of Incompleteness. In this period, a few blocks of Main Street were given a fine, expensive pavement. Then came an abrupt break-off into unimproved country roads.

And today—the Age of Tarvia.

Main Street has been extended. Instead of short stretches of ultra-expensive pavement, the public now demands the greatest possible mileage of good roads that the available funds will permit.

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If you will write to our nearest office we will promptly and gladly give you practical cooperation in solving your road problems.

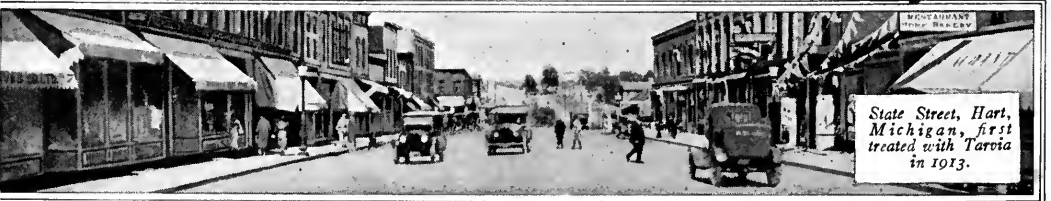
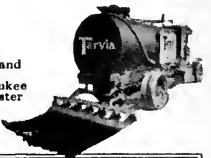
# Tarvia

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*The Board of Education.*—Health teaching is now recognized as a most important part of education. The prevention of blindness and the conservation of vision become important parts of a health education program. A health education program calls for a medical inspection service.

Whether the medical inspection service should be established as an integral part of the school system, or whether it should be a part of the public health activities, need not be discussed here. Wherever the responsibility may be placed, the work that needs to be done is the same. For the prevention of blindness and the conservation of vision this service must provide for:

1. Periodic examination of the eyes of all children in the schools
2. Competent ophthalmologic service
3. Establishment of eye clinics or close cooperation with existing eye clinics
4. Follow-up service for such eye cases as need continued attention
5. Free provision of glasses for children whose parents cannot pay for them
6. Cooperation in the establishment of conservation of vision classes in public schools
7. Instruction of teachers in the care of eyes
8. Cooperation with the proper departments in determining upon and providing proper lighting (both natural and artificial), in giving consideration to typography in the selection of text-books, and, finally, in proper seating

The Board of Education should provide for the establishment of conservation of vision classes for children with seriously

defective vision. Such classes use special clear-type books, do much manual work, are taught by teachers with special training, and are given special vocational guidance. Without sight-saving classes, children with seriously defective vision are not only retarded, but often troublesome both in and out of school through no fault of their own. The conservation of vision class gives such children a fair chance.

*The Department of Safety, the Factory Inspection Department, or any other municipal department charged with responsibility in this field.*—This department should strive to eliminate the eye hazards from industry by requiring proper safeguards. In this work it should cooperate closely with state departments of labor. It should also be concerned with proper lighting in schools, stores, factories, theaters, etc., so that needless eye-strain may be eliminated.

*Private organizations.*—While not directly concerned with private organizations, municipal authorities can do much to encourage the establishment of private associations which may be concerned with the prevention of blindness. In a number of American cities there is the closest cooperation between the municipal authorities and such associations. Such organizations as local safety councils are particularly in a position to help in conserving sight.

The cost of whatever work a city may undertake in the conservation of vision—if it is efficiently done—is an investment on which there will be immediate dividends of increased industrial efficiency and happiness. The work pays for itself many times over, both financially and spiritually.

## Relation of Philanthropy to Social Reform

HERE is the natural and logical relation of philanthropy to social reform. It is the function of private philanthropy to pioneer, to experiment, to try out new things and new methods, and just as soon as it has found the right way and standardized the method that gives results, the time has come for the community to take over the function. This releases a certain amount of private time and money to go on and tackle something else. The means for initiating and carrying on experimental lines of social work must come from private benevolence, but the standardized lines of social work ought to be provided for by the community or the state.

Once the philanthropist set up a drinking

fountain; now there is good city water laid on everywhere. In olden times kind-hearted people provided "ragged schools" for the waifs of the alleys; now there are public schools for all. Once the benevolent created funds to provide meals for indigent prisoners. Time was when the defectives were cared for by charitable groups; now the state provides for these unfortunates. There will always be opportunity for private philanthropy to render signal services; but a democratic society with a proper spirit of independence will not allow itself to form the bad habit of leaning upon the large private donor, but will take as its maxim, "Let us do it ourselves."—Edward Alsworth Ross, in *"The Social Trend."*



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# The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

## Who Are "Lowest Responsible Bidders"?

Concerning legal requirements for the award of public work to lowest responsible bidders, the North Dakota Supreme Court lately said, in the case of Chaffee vs. Crowley, 190 Northwestern Reporter, 308:

"It is well recognized that a responsible bid involves the elements of the ability, capacity, reputation, experience, and efficiency of the bidders. Responsibility must be determined as well as the pecuniary amount. . . . . The county commissioners have a discretion to exercise in this regard. . . . . In their judgment the small difference in dollars between the bids offered might be far outweighed by the ability, efficiency, and facilities of the contractor to whom the award was made."

## Under Pennsylvania Statute, Cost of Installing Ornamental Street Lighting May Be Assessed on Abutting Owners and City Bear Cost of Maintenance

A borough in Pennsylvania may assess the cost of installing ornamental street lights upon abutting property owners and pay the cost of maintenance itself, decided the Pennsylvania Court of Common Pleas for Washington County in the case of Driver vs. Borough of Washington, 14 Pennsylvania Municipal Law Reporter, 93. The Court said:

"Before the amendment of 1917, boroughs had power to light the streets, and to vary the degree, form and style of the illumination as between different streets and parts of streets, according to the judgment of the councils as to what is requisite for or would be conducive to the public welfare; but whatever they did had to be at the general public expense. The only new power which the amendment conferred is the special power, upon petition, to assess the cost of installation and the cost of maintenance of an ornamental lighting system upon property owners. (As 'installation' manifestly means the construction and placing upon the street, ready for operation, of appliances constituting what may be designated as a

physical plant, so 'maintenance' would appear to mean the keeping of the plant, thus constructed and placed, in repair after its installation.) The provisions of the ordinance now in question are an exercise *pro tanto* of the powers thus conferred, and we do not see why, if this be deemed to be fair in view of the benefits resulting to the general public from the project, the borough may not confine its assessment on property owners to the cost of installing, and, in the exercise of its general powers, assume itself the expense of future maintenance."

## Right to Station Police Officers on Private Property Upheld

In the case of Biagini vs. Shoemaker, 210 Pacific Reporter, 193, decided by the Washington Supreme Court, plaintiffs appealed from an order of a lower court, refusing to enjoin defendant, as Commissioner of Public Safety of the city of Tacoma, from stationing uniformed police officers in plaintiff's soft-drink establishment.

The testimony in the case disclosed that the appellants operated under a license from the city of Tacoma to sell soft drinks and tobacco, and that they had a place of business where the character of the equipment, the number of employees, the rent paid, and the stock of merchandise on hand would strongly indicate that, if the appellants' activities were confined to the business for which they had a license, the possibility of making a profit therefrom was somewhat doubtful. Under these circumstances, and coupled with the fact that numerous complaints have been made to the Police Department that the establishment was actively engaged in the illicit sale of intoxicating liquor, that department decided upon the course complained of. The Supreme Court said:

"The evidence fails to disclose that the presence of the police officers has interfered with the legitimate business which the appellants are entitled to conduct. The appellants'



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testimony that their profits have been diminished some 50 or 60 per cent does not attempt to confine that loss to their legitimate business. There are authorities—principally from the Appellate Division of the Supreme Court of New York—to the effect that police departments will be enjoined under facts analogous to those here detailed. But neither the reason nor result of these decisions is engaging, and what seem the better and more numerous authorities are to the contrary. Police officers, of course, cannot be allowed to do unreasonable and unwarranted acts which interfere with legitimate business, yet they are not to be so hampered in their activities in preventing crime as to make the perpetration of crime profitable, easy and uninterrupted. There is no showing here of any unreasonable or capricious action which would warrant the interference of the Court."

**Even Though Consent Is Given by City,  
Abutting Property Owners May Prevent  
Erection of Private Business Establish-  
ment in Public Street**

An owner of abutting property is entitled to enjoin the erection of such private business establishment as a gasoline filling station in a street, although the city may have purported to grant the right to establish it there, holds the Washington Supreme Court in the case of Reed vs. City of Seattle, 213 Pacific Reporter, 923. The Court overruled a decision of a Superior Court judge to the effect that plaintiffs, abutting property owners, had no right to prevent erection of an oil station in a parkway on a boulevard. In part, the opinion of the Supreme Court reads:

"The principal question discussed is whether the proposed station is an unlawful obstruction to the highway. In their arguments upon this branch of the case, counsel, if we correctly understand them, contend that the city's title and ownership of this street differs from its title and ownership of an ordinary street, and that its rights in the one are greater than they are in the other. At least they argue that the city acquired title to the condemned property in this instance in fee, and, having the fee, can devote it to such uses as the charter of the city permits, regardless of the uses for which it was acquired. But to this we cannot agree. While the city in its ordinance widening, extending, and establishing the existing streets for the purposes of this particular highway used the terms 'public streets, highways, boulevards and parkways' in describing it, it did not thereby in any way change its nature. It is still a public highway, and the public have the same rights therein that they have in all other of the public highways of the city. The city may not devote it to uses different from that for which it was acquired, much less can it lawfully sublet portions of it to the private use of another.

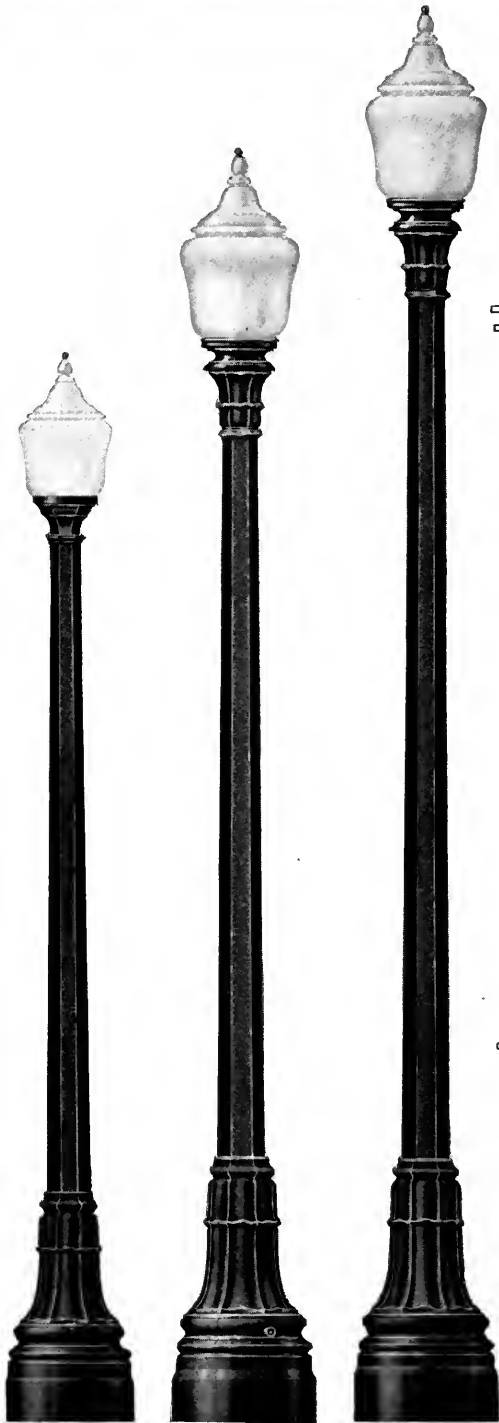
"Our attention is called to certain provisions of the city charter which seemingly authorize the granting of concessions and privileges in 'all of the public squares and parks of the city, and in all park drives, parkways, boulevards, play or recreation grounds,' but we cannot think this has reference to public highways in no way connected with public parks or public recreation grounds. Highways constructed in such places for the convenience and use of the public desiring to make use of them might possibly be so used, but this highway, if it is correctly described in the complaint, is not a highway of that sort. It is a public highway for the general use of the public, and differs in its public function in no wise from the other public highways and streets of the city. It may differ from some of the others in that it was so widened as to be beautified by the construction of parking strips on its margin on which could be planted trees and shrubbery, but this fact does not change its nature, nor does it authorize the city to let the parking strips to private use.

"Nor does the fact that an oiling station is a convenience to the public traveling in automobiles authorize the leasing of a part of the public highway for such a purpose. As we pointed out in the case of Healy Lumber Co. v. Morris, 33 Wash., 490, 74 Pac. 681, 63 L. R. A. 820, 99 Am. St. Rep. 964, public use is not synonymous with public benefit, and public property cannot be taken for private use through the exercise of the right of eminent domain, however much the public would be benefited thereby."

**Plumbing Business May Be Regulated by  
the City in the Interests of the Public  
Health**

That a city, when authorized by charter or statute, validly may regulate the plumbing business by requiring those engaging in it as employing or journeyman plumbers to pass an examination on qualifications, as a health measure, was decided by the Texas Court of Civil Appeals in the case of Tre-witt vs. City of Dallas, 242 Southwestern Reporter, 1073. The Court said, in part:

"That the plumbing business is related to and affects the public health and public welfare we think is beyond the realm of controversy. The plumber is an expert to whom is committed the work of installing in the habitations and public buildings occupied generally by people in cities all the various plumbing fixtures used for the conveyance of gas and water and sewage. He also installs various distribution systems appertaining to heating plants. It is universally regarded as essential that all such work should be planned and installed with a degree of skill which will insure and safeguard the lives and health of people from the dangers well known to flow from improper plumbing. This being true, the calling of a plumber bears a close relation to and does concern the public health. It is accordingly a business which is the proper subject of police regulation."



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# Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York, 233 Broadway, New York,  
and from other sources

## Recent Zoning Ordinances

- Seattle, Calif.—Ordinance, July, 1923  
Sierra Madre, Calif.—Ordinance No. 271,  
June 28, 1923  
Worcester, Mass.—Ordinance, March 1, 1923,  
amended March 13, 1923  
Jackson, Mich.—Ordinance, June 23, 1923  
Troy, N. Y.—Ordinance, July, 1923.  
Pittsburgh, Pa.—Ordinance, July 30, 1923  
Columbus, Ohio.—Ordinance, August 6, 1923

## New Jersey Court Rules Against Single Family Districts

On July 31 a peremptory writ of mandamus was ordered by Chief Justice Gummere of the New Jersey Supreme Court, requiring the building inspector of the town of Westfield to issue a certificate of occupancy for a two-family residence in a district which had been restricted to single families under the zoning ordinance adopted by the town on December 5, 1921. The decision says, in part:

"The ordinance appealed to is sought to be justified upon the ground that it is authorized by chapter 240 of the laws of 1920 (Pamph. Laws 455), which confers upon municipalities power to regulate the location and use of buildings—including residences—for the purpose of promoting the public health, safety and general welfare. It will be observed that this statutory power is a limited one, and does not authorize municipalities to restrict the use of residential properties, unless such restriction is reasonably necessary for the carrying out of the declared legislative purpose. It follows, therefore, that, where a municipality attempts to regulate the use of such properties by restrictions which have no tendency to produce the results indicated by the Legislature, such municipal action is purely arbitrary; not authorized by the act of 1920; and, consequently, null and void."

Mayor Merton D. Littlefield writes to THE AMERICAN CITY under date of August 10, 1923, that an appeal from Justice Gummere's decision will be taken by the town of Westfield to the Court of Errors and Appeals.

## Other Recent Zoning Decisions

New York, *Kimball Co. v. Fox*, 120 Misc. 701.—A private covenant forbidding certain uses on given premises is not rendered entirely technical and unsubstantial, because most of the uses included in the covenant are also forbidden by a subsequent zoning regulation. It is true that the covenant is an encumbrance, and the zoning regulation, being a police regulation, is not; but—apart from the fact that the covenant embraces some uses not covered by the zoning regulation—that regulation is subject to change, while the covenant—except by consent—cannot be changed.

Wisconsin, *Piper et al. v. Ekeru*, Atty. Gen., Supreme Court, May 25 and June 18, 1923.—Statute 1921, Sec. 4444g, limiting, without com-

pensation, the height of buildings on property surrounding the State Capitol building is an unreasonable exercise of the police power, and violates the state constitution prohibiting the taking of property for public use without just compensation, and the due process clause of the United States Constitution.

It will be noted that this law is neither a uniform height regulation for the entire city, nor a regulation applicable to a portion of the city, as part of zoning regulations covering the entire city, either one of which, if reasonable, would undoubtedly have been sustained.

## New Publications

The Toledo City Journal of June 30, 1923, publishes an interesting article entitled "Some Practical Aspects of Zoning." Particularly instructive is its statement, made after an extensive investigation, that comparatively little litigation has followed the enactment of the large number of zoning ordinances now in existence in this country.

The Iowa State College, of Ames, Iowa, on June 6, 1923, issued a pamphlet entitled "Zoning for Iowa Cities and Towns," which is of equal interest in other states. Its author is Rolland S. Wallis.

The report of the Chief Engineer of the Board of Estimate, Arthur S. Tuttle, for 1921, has just appeared. It contains (pp. 71-73) a short review of the progress of zoning in New York for the past five years since its adoption in that city, by Vernon S. Moon, Assistant Engineer. Noteworthy is his statement:

"The substantial proportion of the requests received for increasing the restrictions leads to the belief that, if the public had been as well informed at the time the zoning resolution was adopted as to the benefits to be derived therefrom as it is to-day, the restrictions could have been made somewhat more drastic."

## New Feature in Nassau County Zoning Law

Last month reference was made to the planning and zoning provision in the law establishing a new form of government for Nassau County, New York, which was passed by the Legislature of 1923, and awaits ratification by the people of the county in 1925. In that law an attempt is made to guard against a danger in the zoning of regions containing a number of communities each with power to zone itself. Experience has shown that these communities often push their heavy industry and other uses more likely to be objectionable out into their outskirts, to the annoyance of neighboring communities. The Nassau law provides that, in so far as a zoning regulation affects the strip, 500



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feet wide, contiguous to a neighboring community, it shall not go into effect until ratified by vote of that community, or, failing such ratification, by a three-fourths vote of the county board of supervisors. This is a provision by which a community reasonably considerate of its neighbors will not be likely to suffer; and is more a surrender of rights within one's own limits than it is the acquisition of rights in the neighboring community.

### Another Important New Jersey Decision

Just as the issue is going to press word is received of a decision rendered August 16 by Justice Katzenbach, of the New Jersey Supreme Court, voiding the zoning ordinance of Nutley in so far as it prohibits a retail store in a residential district. More extended comment on this will be published in the October number.

## Shall the State-wide Theory or Local Area Theory Prevail in the Fixing of Telephone Rates?

By William Wagner

American Public Utilities Bureau

**I**N those states where the public utility commissions are empowered to fix rates and otherwise regulate the telephone industry, it is usually a mooted question in the fixing of rates for a company operating over a great portion or the entire area of the state, whether the commission should consider the establishment of rates from the standpoint of telephone operation as one unit of service throughout the entire state, or consider the operation of the industry from the standpoint of the local area. The local area is an area the subscribers of which may communicate with one another without incurring a toll charge.

One of the important cases tried on the local area or segregated district theory was in New York State. The New York Telephone Company operates over practically the entire state of New York. Many cities in the state having complained to the Public Service Commission of increases in rates, it was agreed to select the application of one city (Syracuse) and try its case, with the thought that the evidence submitted and the results arrived at, would be a great benefit in reaching a decision regarding more than a hundred other telephone rate cases then pending before the commission. The company's records were not kept on the basis of operations in a particular local area, and the city's experts found it necessary to examine the property in the area under consideration and to segregate earnings and expenses, in order that the local area might be considered an operating unit.

The Commission's decision, when rendered, was adverse to the city. Later, the city again applied for a rehearing on the

ground that the Commission committed errors of law in arriving at the conclusions and order made in this case. The Commission, in its opinion on the application for rehearing, said that it felt that its duty to the patrons of this public utility was to point out the great expense and waste of effort manifested in trying a case on the local area theory, and, further, that no real results of value to any other municipality were attained; that it was pertinent to state, also, that the Commission had entered upon investigations of the company's operations throughout the entire state and that such investigations would include the rates and charges for telephone service in Syracuse.

No doubt there are many conditions in New York state which caused the Commission to reach the conclusion that in New York state, at any rate, statewide regulation is the solution of the matter. Other commissions have seen the matter in a similar light. On the other hand, it must be remembered that in this method there very often enters the element of discrimination against well-populated communities; and where commissions see fit to promulgate rates on a state-wide basis, there can be little question that if the rates prescribed in a particular city yield more than a reasonable return on the fair value of the telephone plant in that city, the subscribers in that city, through their local officials or otherwise, can gain redress through the courts. In either case, whether the state commission views the matter from the state-wide theory or the local area theory, it is important that each city sees to it that its interests are safeguarded.

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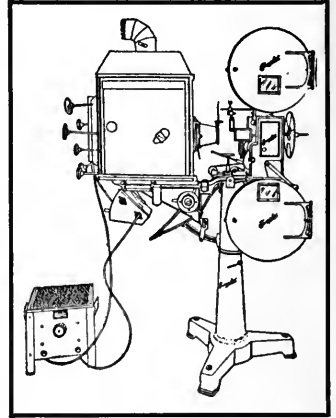
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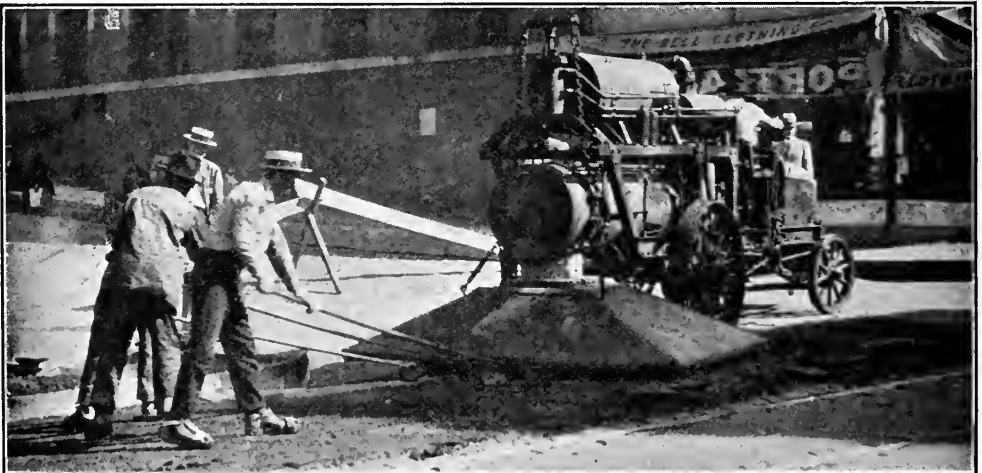
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## An Unofficial Auxiliary City Council of Women

**S**IGNIFICANT results have been accomplished by a unique City Council of Women at Highwood, Ill., a suburb 22 miles north of Chicago, where two years ago Mayor Tom Welsh conceived the idea of having a group of the town's women cooperate with the regularly elected City Council.

Committees of the Highwood Ladies' Welfare Club were elected in each ward, each committee consisting of a chairman and six other women. These groups nominated candidates for women aldermen from their respective wards to sit with the official city council.

This unofficial auxiliary city council meets with the regularly elected Council of men. No matter of public policy has been consummated in Highwood since the creation of this group of women without their cooperation.

Streets and alleys have been cleaned as a result of the vigilance of these women; a school nurse has been engaged and funds for her salary and expenses have been raised, and many other civic accomplishments are directly attributed to this unique organization.

## How Milwaukee Plans to Amortize Its Public Debt

**U**NDER enabling legislation, known as the Milwaukee Public Debt Amortization Act, Milwaukee has begun to apply the principles of compounding interest to fund its public debt. The sum of \$400,000 was recently turned over to the Public Debt Commission, constituted custodian of the fund. This nucleus represents interest earned on instalments of street improvements assessments which the city is financing as a part of its previously organized cash basis plan, all of which was made immediately available under provisions of the act. To this will be added all future interest from the same source, approximately \$100,000 each year, without further action on the part of the Common Council. In addition, of all other interest on any city funds whatsoever, one-third will automatically be turned over to the Amortization Fund by mandate of law.

Starting the fund with approximately \$400,000, the amount which is now on hand, and adding thereto the estimated minimum of \$250,000 each year under the mandatory provision of the act, and investing the principal at 4½ per cent, with interest compounded, local statisticians have computed that the amount of the fund at the end of ten years will be \$3,437,950; at the end of twenty years, \$8,549,136; at the end of thirty years, \$16,486,808; at the end of forty years, \$28,794,013; at the end of fifty years, \$47,927,102.

Some financiers held that the actual purchase of city bonds in the open market and their retirement would be a better method to pursue; but the proponents of the new law argued that this would only result in permitting further bond issues and thus result in practically no gain. The Amortization Act provides that the

fund shall not be used as an offset to the constitutional debt limit.

The Public Debt Commission can invest its funds only in city bonds, federal bonds, or bonds of other Wisconsin municipalities. The records and investments must be audited and checked semi-annually by the Commissioner of Banking, and all checks must be countersigned by the City Comptroller.

## Maine Aims to Become the Healthiest State

**A**CCORDING to figures of the State Department of Health of Maine, as reported in the Maine Public Health Association *News*, more than half of the deaths in Maine during 1922 occurred after the age of 60 years. Here is the 1922 table:

AGE AT DEATH	Number	Pctg. of Total
Under one year.....	1,529	13.32
1 to 4.....	379	3.30
5 to 9.....	164	1.43
10 to 19.....	367	3.20
20 to 29.....	496	4.32
30 to 39.....	575	5.01
40 to 49.....	796	6.93
50 to 59.....	1,111	9.68
60 to 69.....	1,946	16.95
70 to 79.....	2,348	20.45
80 to 89.....	1,519	13.23
90 to 99.....	242	2.11
Over 100 years.....	7	.06
Not stated.....	1	.01

The estimated population for Maine in 1922 was 777,749.

The Maine Public Health Association has adopted as its slogan, "Maine, the Healthiest State," and reports that leaders in all walks of life are lending support to the movement to make that objective a reality.

## Automobile Clubs Helping Public Officials

**I**N a recent statement, M. O. Eldridge, Executive Chairman of the American Automobile Association, calls attention to the increasing cooperation between local automobile clubs and public officials. In many communities the authorities are finding the automobile clubs of the greatest assistance in gaining public confidence and civic support for comprehensive plans for street and highway improvement and for the regulation of the use of such streets and highways by the motor vehicle. Business men of wide experience, serving unselfishly on committees of local clubs, are cooperating with traffic officials. Where new methods of dealing with local traffic problems are adopted, the automobile club is often the first organization called upon to help popularize these regulations and create a favorable public sentiment for their enforcement.

## Underpaid and Undermanned Health Departments

**W**ITH a half-dozen exceptions, city health officers are underpaid if they are performing faithfully and efficiently the duties which are required of them. The in-



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## FOR CURING CONCRETE



**DOW**

Have you tried DOWFLAKE in your concrete curing operations? Do you know how useful it is in cold weather? A few years ago everyone would have answered—"No, we never heard of it." Yet DOWFLAKE is coming into daily use for concrete curing as rapidly as Portland Cement concrete itself came ahead a few years after its discovery.

Some state highway departments after two years testing have adopted DOWFLAKE as a daily essential, purchased and used with the same regularity as sand, gravel or cement. Hundreds of highway contractors would hardly know how to do without it.

Don't forget DOWFLAKE for your next job. In highway work, curbs, sidewalks—DOWFLAKE releases forms for use over and over again for it does give concrete the same relative strength in 10 days as it would attain in 21 days under ordinary curing processes.

DOWFLAKE gets floors, sidewalks and pavement-patches into use in less than half the time—avoids tying up equipment and eliminates most of the cost and danger of detouring traffic for patching work. It saves its cost in red lanterns, signs and smashed headlights alone. You dig out concrete and patch it today—and tomorrow the road may be opened.

Write for the new DOW book—"HOW TO CURE CONCRETE." It will prove a source of both information and profit. DOWFLAKE is particularly useful in adding a month or so to the fall construction season, so don't delay trying it.

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### DOWFLAKE For Cold Weather

Concrete construction work in cold weather is a hazardous undertaking without suitable protection.

DOWFLAKE provides insurance for the contractor during the season of the year when freezing and thawing is common.

Only two or three pounds of DOWFLAKE added to the mix with every sack of cement will eliminate many risks during late fall construction.



creasing cost of city government must be taken into account by those who are responsible for city budgets, and the question is often asked, "Why should the health officer receive as much as the mayor or as much as some other official?"

The answer is not difficult. It takes at least seven years to make a modern physician, and a great deal of money. It takes several years more to make a good health officer of that physician. From a financial standpoint it is questionable if the average salary paid city health officers to-day does not represent an actual financial sacrifice through time taken from private practise for the performance of onerous and often disagreeable duties, which in many instances detract from the health officer's personal popularity as a physician—not only among his patients but among his brother physicians. As a rule, the more faithfully a health officer performs his duties, the less successful he becomes as a private practitioner.

The routine work of the health officer is seldom spectacular. From the very nature of many of his duties it is desirable that no more than necessary publicity should be given to their performance; whereas the work of the police and fire department advertises itself. Nevertheless, it cannot be denied that the preservation of health and the suppression and prevention of conditions that cause human illness and death are of equal importance with any other function of civic government.

However desirable it may be in theory for

a city to have the services of a full-time health officer, it will be a long time before many of the smaller cities, at least, will be able or willing to pay the necessary salary, and there can be no doubt that efficient service may be given by part-time officials, provided only that they be granted sufficient help, especially as regards nursing and clerical service. But the compensation should be proportionate to the importance of the service rendered, and sufficient to attract able men to the office, who otherwise cannot afford to make the financial sacrifice.

—From a paper on "The Salary and Tenure of Office of City Health Officers," read by Matthias Nicoll, Jr., M. D., New York State Commissioner of Health, Albany, N. Y., before the New York State Conference of Mayors, June, 1923.

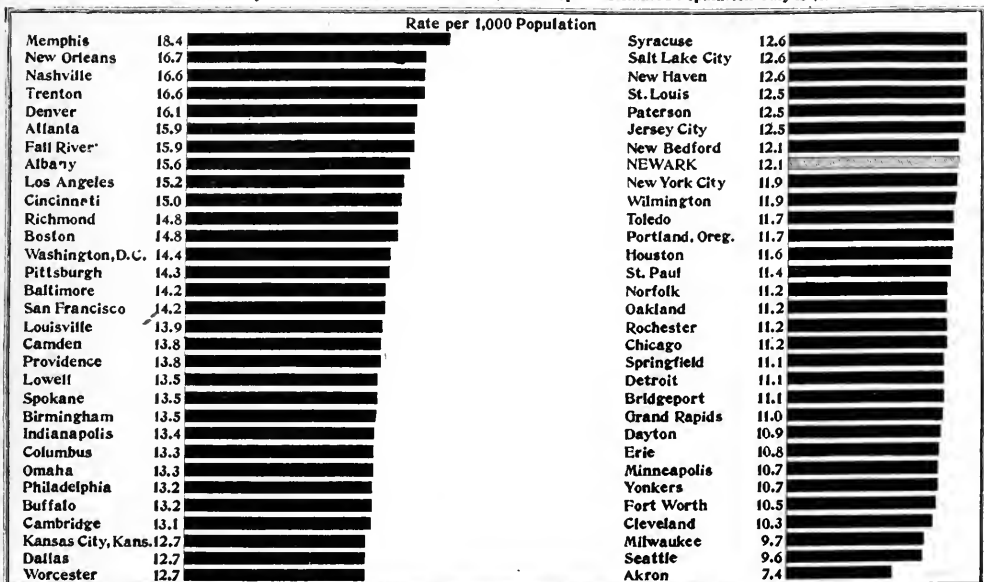
### Standardization of Hose Couplings for Fire-Fighting Purposes

THE standardization of all hose couplings used for fire-fighting purposes in the state of Oregon will be begun soon by Will Moore, State Fire Marshal. A law requiring standardization was passed at the last session of the Legislature.

Couplings on all fire hose in the state will be re-threaded. When the work is done, apparatus taken from one city to another to aid in fighting a fire can be used without difficulty or delay. Several thousand dollars will be spent in completing the standardization.

### Annual Death Rates For 1922 In Cities Over 100,000 Population

Tabulation By The U.S. Bureau Of The Census, Based Upon Estimated Population July 1st, 1922



HOW THE DIVISION OF VITAL STATISTICS OF THE DEPARTMENT OF HEALTH OF NEWARK, N. J., SHOWS THE STANDING OF THAT CITY IN COMPARISON WITH OTHER LARGE MUNICIPALITIES

From the recently published pamphlet, "Newark's Own Health Record."



# Building Asphalt Pavements Without a Plant

Large cities as well as the smaller communities are adopting Kentucky Rock Asphalt for their heavy traffic and residential streets. Kyrock gives a perfect sheet surface without the heavy cost and the risk of failure always present in a hot mix. Besides, Kentucky Rock Asphalt is easily maintained. The material may be kept in storage for an indefinite time without injury and used for maintenance as needed.

Referring to the opening of Hayes Avenue, the Nashville "Tennessean" of April 30, 1923, says:

"Nashville's most perfect street, Hayes Avenue from Fifteenth Avenue, north, was officially opened for traffic shortly before noon Monday by Mayor Percy Sharpe, City Engineer Southgate and Inspector W. H. Peeples. The city offi-

cials pronounced the street the most perfect in Nashville, both from points of workmanship and material. The street is constructed on a rock base with a Kentucky Rock Asphalt that makes it practically indestructible despite the heavy traffic.

"According to Engineer Southgate, the Kentucky Rock Asphalt is the most durable road surface material obtainable. He recently tested a section of street on Eighteenth Avenue, north, that was constructed over thirty-four years ago and found it only one-half of one per cent deteriorated despite the long years of usage."

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## Stricter License Laws Essential to Eliminate Unfit Drivers

THE time is not far distant when every state will have a license law for the purpose of eliminating the unfit drivers—and why not? If an otherwise law-abiding, intelligent and substantial citizen carries a revolver to protect his life or property, he may be arrested and sent to the penitentiary; while drunken and insane men, the deaf, dumb and blind, helpless cripples and confirmed criminals, including murderers, bank and pay-roll robbers and any and all kinds of crooks, may obtain licenses to drive cars with which they can do more harm than all the gun-toters in Ohio.

Of course crooks could steal and drive cars as they do now without anyone's permission, but with a license law in force and with the police making frequent and thorough demands

upon drivers to produce their licenses, many crooks would be picked up and put away before committing more serious offenses.

Such a law would also provide an additional and very effective form of punishment for intoxicated and reckless drivers and speeders; for the trial judge could revoke their drivers' licenses, and the burden would be upon the offender to show by a long period of good behavior that he was entitled to have his license renewed.

Any experienced traffic judge can furnish many instances that have come to his attention of mentally and physically defective people, as well as criminals, who are now permitted to drive and thus create a constant menace to everyone who must use the streets.

JUDGE ALVA R. CORLETT,  
Municipal Court, Cleveland, Ohio, before the National Safety Council.

## On the Calendar of Conventions

- SEPTEMBER 10-13.—TORONTO, ONT.  
*Public Ownership League. Biennial Public Ownership Conference.* Secretary, Carl D. Thompson, 127 North Dearborn Street, Chicago, Ill.
- SEPTEMBER 10-14.—CORONADO, CALIF.  
*League of California Municipalities. Annual convention.* Executive Secretary, William J. Locke, Pacific Building, San Francisco, Calif.
- SEPTEMBER 10-15.—KANSAS CITY, MO.  
*American Institute of Park Executives. Annual convention.* Secretary-Treasurer, W. O. Doolittle, Minot, N. Dak.
- SEPTEMBER 13-19.—BOSTON, MASS.  
*American Prison Association. Annual convention.* General Secretary, E. R. Cass, 135 East 15th Street, New York, N. Y.
- SEPTEMBER 18-21.—BURLINGTON, VT.  
*New England Water Works Association. Annual convention.* Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.
- SEPTEMBER 24-28.—LAKE GEORGE, N. Y.  
*Illuminating Engineering Society. Annual convention.* General Secretary, Samuel G. Hilbhen, 29 West 39th Street, New York, N. Y.
- SEPTEMBER 24-28.—WHITE SULPHUR SPRINGS, W. VA.  
*National Tax Association. Annual conference.* Secretary, Alfred E. Holcomb, 195 Broadway, New York, N. Y.
- SEPTEMBER 25-28.—READING, PA.  
*International Association of Municipal Electricians. Annual convention.* Secretary, Clarence R. George, City Electrician, Houston, Tex.
- SEPTEMBER 27-28.—CHICAGO, ILL.  
*International Association of Street Sanitation Officials. Annual conference.* Secretary, A. M. Anderson, 10 South La Salle Street, Chicago, Ill.
- OCTOBER 1-5.—BUFFALO, N. Y.  
*National Safety Council. National Safety Congress.* Executive Secretary, W. H. Cameron, 165 North Michigan Avenue, Chicago, Ill.
- OCTOBER 2-4.—WASHINGTON, PA.  
*Pennsylvania State Association of County Commissioners. Annual convention.* Secretary, L. C. Norris, Clearfield, Pa.
- OCTOBER 8-11.—BOSTON, MASS.  
*American Public Health Association. Annual meeting.* Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y.
- OCTOBER 8-12.—SPRINGFIELD, ILL.  
*Playground and Recreation Association of America. Recreational Congress.* Secretary, H. S. Braucher, 815 Fourth Avenue, New York, N. Y.
- OCTOBER 8-13.—NEW YORK, N. Y.  
*National Fire Prevention Exposition.* One of the features of Fire Prevention Week. Address: Temporary Executive Headquarters, 25 East 26th Street, Room 1014, New York, N. Y.
- OCTOBER 10-12.—INDIANAPOLIS, IND.  
*Indiana Municipal League. Annual meeting.* President, Eli F. Seebirt, Mayor, South Bend, Ind.
- OCTOBER 15-17.—DETROIT, MICH.  
*American Child Health Association. Annual meeting.* Secretary, Dr. Philip Van Ingen, 370 Seventh Avenue, New York, N. Y.
- OCTOBER 16-17.—HARRISBURG, PA.  
*Pennsylvania Commercial Secretaries' Association. Annual meeting.* Secretary-Treasurer, Willis B. Morey, Secretary, Chamber of Commerce, Lancaster, Pa.
- OCTOBER 16-18.—HUTCHINSON, KANS.  
*League of Kansas Municipalities. Annual meeting.* Secretary, John G. Stutz, University of Kansas, Lawrence, Kans.
- OCTOBER 18-19.—HARRISBURG, PA.  
*Pennsylvania State Chamber of Commerce. Annual meeting.* Secretary, George E. Foss, 101 Telegraph Building, Harrisburg, Pa.
- OCTOBER 22-23.—CINCINNATI, OHIO.  
*Ohio State Conference on City Planning. Annual conference.* Secretary-Treasurer, Charlotte Rumbold, 201 Chamber of Commerce Building, Cleveland, Ohio.
- OCTOBER 23-26.—RICHMOND, VA.  
*International Association of Fire Engineers. Annual convention.* Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.
- OCTOBER 29-31.—CINCINNATI, OHIO.  
*National Association of Commercial Organization Secretaries. Annual meeting.* Secretary-Treasurer, Joseph F. Leopold, 301 Crocker Building, Des Moines, Iowa.
- NOVEMBER 12-16.—ATLANTA, GA.  
*American Society for Municipal Improvements. Annual convention.* Secretary, Charles Carroll Brown, P. O. Box 234, St. Petersburg, Fla.
- NOVEMBER 13-15.—WASHINGTON, D. C.  
*City Managers' Association. Annual convention.* Secretary, John G. Stutz, University of Kansas, Lawrence, Kans.
- NOVEMBER 14-17.—WASHINGTON, D. C.  
*Governmental Research Conference. Annual convention.* Secretary, Arch Mandel, Director, Dayton Research Association, Dayton, Ohio.
- NOVEMBER 15-16.—HAMILTON, ONT.  
*Ontario Associated Boards of Trade and Chambers of Commerce. Annual meeting.* Secretary, T. Marshall, Toronto, Ont.
- NOVEMBER 15-17.—WASHINGTON, D. C.  
*National Association of Civic Secretaries. Annual convention.* Secretary, Francis T. Hayes, City Club, Hollenden Hotel, Cleveland, Ohio.
- NOVEMBER 15-17.—WASHINGTON, D. C.  
*National Municipal League. Annual meeting.* Secretary, H. W. Dodds, 261 Broadway, New York, N. Y.
- JANUARY 13-19.—CHICAGO, ILL.  
*American Road Builders' Association. Annual convention.* Secretary, Ethel A. Birchland, 37 West 39th Street, New York, N. Y.

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# Municipal and Civic Publications

Prices do not include postage unless so stated

**A Parody Sport Book.—Health Habits for "Good Sports."**—Written by Cliff Goldsmith (Professor Happy); Illustrated by Clive Weed. Published by the American Child Health Association, Health Education Division, 370 Seventh Ave., New York. Copyright, 1923. 20 pp. Photographs and drawings. 25 cents.

A unique presentation of the simple rules of health in terms of sports and stimulating messages from well-known athletes. The games start with "Water Polo, the favorite sport at Bathtub Bay," which should be played every morning at sun rise, or daughter rise, as the case may be," and close with "Evening Baseball, the game that made the white pajama twirlers famous over night."

**Learning English.**—By Annie Fisher, District Superintendent of Schools, Hartford, Conn. Ginn & Company, Boston and New York. 1923. XVII + 306 pp. Illustrated. \$1.00.

An excellent tool in Americanization work. Lessons which give the foreigner a working knowledge of English in his daily life and a variety of other information that will help to make him an American citizen.

**Citizen or Subject?**—By Francis X. Hennessy, of the New York Bar. E. P. Dutton & Company, 681 Fifth Avenue, New York. XXIV + 466 pp. \$3.00.

In the first part of this book the author attempts to show from the words of the founders of our country and the framers of the constitution that only the citizens themselves, and no government or governments, can validly alter the power of the government over the human freedom of the citizens. In the second part he argues that the making of the Eighteenth Amendment was a government attempt to defeat the main and accomplished purpose of the Americans who made America and to take back supremacy from the people.

**Outlines of Responsible Government.**—"Some Constructive Proposals." Intended as a supplement for high school classes in civics. Published by the National Municipal League, 261 Broadway, New York, N. Y. Editor in charge, Edgar Dawson, Professor of Political Science, Hunter College, New York. 46 pp. Containing the following articles: The Short Ballot, by R. S. Childs, Vice-President, National Municipal League, in collaboration with W. W. Rogers, Curtis High School, New York; The City Manager Plan, by A. S. Beatman, Julia Richman High School, New York, in collaboration with A. R. Hatton, charter consultant, National Municipal League; The Budget, by Luther Gulick, Director, National Institute of Public Administration, in collaboration with W. L. Rice, Boys' High School, Brooklyn, N. Y.; Essentials of a State Constitution, by G. D. Luetscher, New Utrecht High School, New York, in collaboration with Edgar Dawson. (Apply to the publishers.)

**City Tax Rate for 1922 (Kansas).**—A compilation of the city, school and county tax rates effective for 542 cities in Kansas, together with their population, assessed valuation and bonded indebtedness. Bulletin No. 37 compiled by the Municipal Reference Bureau, University Extension Division, University of Kansas, Lawrence, Kans. April 1, 1923. Published by the League of Kansas Municipalities. Price 25 cents. 29 pp. Map, tables. (Apply to John G. Stutz, Secretary of the League, Lawrence, Kans.)

**Municipal News in Detroit Newspapers.**—By Lida Rideout, B.A., Bulletin No. 2 of the Bureau of Government, University of Michigan, Ann Arbor, Mich. July, 1923. 5 mimeographed pp. Confirming, by a study of municipal news in Detroit papers, the statement that the proportion of the news in our daily papers which relates to city government is almost ridiculously small. (Apply to Thomas H. Reed, Director of the Bureau.)

**Fire Prevention and Fire Protection.**—National Fire Protection Association International Publications on the subjects of Fire Prevention and Fire Protection. Available in the Files; and Index to subjects covered in the printed records. May 1, 1923. 79 pp. (Apply to the National Fire Protection Association, 40 Central Street, Boston, Mass.)

**Proceedings of the Second Annual Meeting of the Advisory Board on Highway Research, Division of Engineering, National Research Council.**—Edited by William Kendrick Hatt, Director, Advisory Board. Meeting held at Washington, D. C., November 23, 1922. Published by the National Research Council of the National Academy of Sciences, Washington, D. C. May, 1923. 89 pp. Containing reports of committees on the following: Economic Theory of Highway Improvement; Structural Design of Roads; Character and Use of Road Materials; Highway Traffic Analysis; Highway Finance; Maintenance of Roads. (Apply to publishers.)

**Public Parking Places for Automobiles in American Cities.**—Report No. 99, compiled by Bureau of Municipal Information of the New Jersey State League of Municipalities. June 18, 1923. 19 large mimeographed pp. Information presented under the heads of "The Problem," Factor to be Considered," and "Proposed Solutions." (Apply to the Bureau, at Trenton, N. J.)

**Team Work by Merchant, Farmer, Home Maker in Community Service for the Home Town.**—By Judge Frank T. Wilson, Community Adviser, University of Minnesota, January, 1923. 32 pp. Diagrams. Practical suggestions on community organization and work, in order that better farms, homes and stores may be built in the small-town community and thus the foundations of the republic be made broader and deeper. (Apply to the Extension Service of the University of Minnesota, Minneapolis, Minn.)

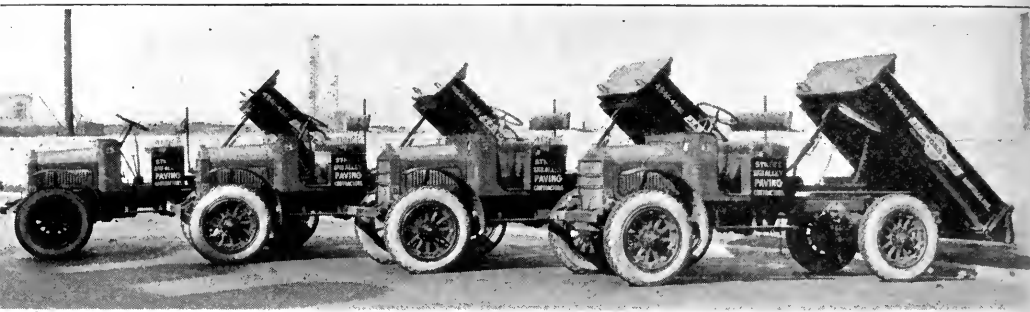
**City Planning and Zoning.**—By Frank Greene Bates, Executive Secretary, Indiana Municipal League; Associate Professor of Political Science, Indiana University. Bulletin of the Extension Division, Indiana University, Bloomington, June, 1923. 8 pp. Illustrated. Giving briefly and clearly the principles of development which will tend to make cities and towns efficient, healthful and beautiful places for homes and industries. Including a synopsis of the Indiana City Planning Law. Published for the Indiana Municipal League by the Extension Division of Indiana University. (Apply to the Extension Division.)

**Report of the New York Charter Commission to the Legislature, with a Draft of Charter for the City of New York.**—Approved by the Commission on March 5, 1923. 340 pp. Appendix B gives the opinion of Franklin W. M. Cutcheon, Counsel for the Commission, concerning the possibility of a system of proportional representation under the existing constitution of the state of New York. (Apply to the Commission, Municipal Building, New York, N. Y.)

**General and Specialized Public Health Nursing.**—In the Weekly Health Review of the Detroit Department of Health for the week ending June 23, 1923. 3 mimeographed pp. Showing how Detroit is having about one-tenth of the population (total population about 100,000) taken care of by generalized nursing, while the remaining nine-tenths operates under the specialized program. Conclusions based on observation of this work are given. (Apply to Henry F. Vaughan, Commissioner, Department of Health, Detroit, Mich.)

**Vocational Education in Nebraska.**—What It Is and What It Does. Bulletin No. 6, January, 1923, of the State Board for Vocational Education, 204 University Temple, Lincoln, Nebr. 28 pp. Illustrated. A most interesting account of the way in which Nebraska is preparing young people to be self-supporting when they leave school. (Apply to the State Board.)

**Children's Bureau Pamphlets.**—Three publications of the Children's Bureau of the U. S. Department of Labor. 1923. No. 93, Child Labor—Outlines for Study; 61 pp.; price, 10 cents. No. 120, Maternity and Infant Care in a Mountain County in Georgia, by Glenn Steele; 58 pp., illustrated; price, 15 cents. No. 118, Standards of Public Aid to Children in Their Own Homes, by Florence Nesbitt; 145 pp.; price, 15 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)



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## DEPENDABLE TRANSPORTATION



**Materials and Plans for a County Library Campaign.**—Suggested news stories, editorials, feature stories, and publicity plans for the use of local county library committees. Compiled by Forrest B. Spaulding, and issued by the American Library Association, 1923. 47 mimeographed pp. Single copy, \$1.00; 2 copies, \$1.25; 3 or more copies, 50 cents each. (Apply to the American Library Association, 78 East Washington Street, Chicago, Ill.)

**Municipal Government and Activities of the City of Milwaukee for 1922.**—Report of the Common Council compiled and edited by Ovid B. Blix, Municipal Reference Librarian. A distinctive, definite illustrated report, of 103 pages, describing the work of the city departments and including the reports of the boards and commissions which have independent mill tax levies, and also several quasi-public institutions to which the city grants some financial assistance. A report that really reports to the citizens and the general public. (Apply to Ovid B. Blix, Municipal Reference Librarian, Milwaukee, Wis.)

**Per Capita General Property Taxation in Michigan Cities of Over 2,500 Population, 1922.**—By Josephine Hoyt, M.A., Secretary, Bureau of Government, University of Michigan, Ann Arbor, Mich. June, 1923. 11 mimeographed pp. Tables based upon data for 1922 furnished by the Michigan Board of State Tax Commissioners. (Apply to the Bureau.)

**The Taxpayer's Dollar.**—A 6-page folder issued to show the citizens of Detroit just what portion of their taxes are used for each department, and to enable them to study the appropriations intelligently on the basis of the city's facilities and needs. Containing also information about tax procedure in relation to the individual. (Apply to Guy L. Ingalls, City Treasurer.)

**Town Planning Publicity.**—Three pamphlets issued by the Town Planning and Rural Development Branch of the Department of Municipal Affairs of the Province of Saskatchewan: "Procedure Regulations for Development by-laws," 11 pp.; "Regulations Respecting New Streets and Subdivisions," 12 pp.; "Ten Reasons for Town Planning," 2 pp. (Apply to W. A. Begg, Director of Town Planning, Department of Municipal Affairs, Regina, Sask.)

**Tourists' Camps in Kansas Cities.**—Compiled and mimeographed by the Municipal Reference Bureau, University Extension Division, University of Kansas, Lawrence, Kans. Bulletin No. 35. March 1, 1923. Listing 156 tourist camps, with data on their location, equipment and maintenance. 36 quarto pp. Price, 50 cents. (Apply to the Bureau.)

**The Child Health School.**—Conducted in the School of Education of the University of Chicago during the summer of 1920 by Lydia J. Roberts, Assistant Professor of Economics, University of Chicago. This pamphlet of VI + 60 pp. is School Health Studies No. 2, of the Bureau of Education, U. S. Department of the Interior. 1923. Illustrated. The writer of the pamphlet was in charge of the school, which was undertaken for the purpose of demonstrating on a small scale how a school organized on a health basis may function to improve the health habits, nutrition and general well-being of its children. Price, 10 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Selected Pictures.**—For the family program, young people and special entertainments. Selections by The National Board of Review of Motion Pictures from the pictures submitted to it (in advance of release) during 1922. Compiled by The National Committee for Better Films, 70 Fifth Avenue, New York, N. Y. 1923. Valuable for schools, churches, community houses, libraries, clubs, better films committees, and others. Eighth annual catalog. Price, 25 cents. (Apply to the Committee.)

**A Proposed System of Registering Voters and of Canvassing the Registration Lists in Chicago.**—Report prepared by the Chicago Bureau of Public Efficiency. March, 1923. 40 pp. A discussion of changes in registration procedure and methods which, it is claimed, would result in substantial economies and tend to minimize fraudulent voting. (Apply to Harris S. Keeler, Director, Chicago Bureau of Public Efficiency, 315 Plymouth Court, Chicago, Ill.)

**Directory of Civic and Welfare Activities of Cleveland.**—Compiled and published by The Cleveland Foundation, Cleveland, Ohio, June 1, 1923. Editors, C. E. Gehlke and Helen Chew. 315 pp. A revision of the Directory of Community Activities published by the Foundation in 1921, bringing the information down to date. Price, \$1.00. (Apply to the publishers.)

**Why We Need Excess Condemnation.**—"A Boon to the Property Owner—A Blessing to the Public." By Lawson Purdy, for many years President of the Commissioners of Taxes and Assessments of New York City. Reprinted from "National Municipal Review" for July, 1923. 8 pp. Illustrated. The purpose of excess condemnation "is usually either to protect the improvement or to put the incidental land to its best use." For general gratuitous distribution. (Apply to the National Municipal League, 261 Broadway, New York, N. Y.)

**Proceedings of the First Annual Convention of the Colorado Municipal League.**—The convention was held April 26-28, 1923, and resulted in the organization of the League. This report is issued by the Bureau of Business and Governmental Research, University Extension Division, University of Colorado, Boulder, Colo., June, 1923. 50 pp. Containing, among others, the following addresses: The City Manager Plan in Montrose, by J. E. McDaniels, City Manager, of Montrose, Colo.; Municipal Accounting, by Henry Sayre, City of Boulder; Business Methods in Government, by Don C. Sowers, of the Bureau of Business and Government Research; Capital Profit in Street Railway Investment, by Delos F. Wilcox; The Relation of Municipal Administration to the Public Health, by J. W. Ames, M.D., Medical Adviser, Denver Health Department; and Leagues of Municipalities, by Don C. Sowers. (Apply to the Bureau.)

**Zoning for Iowa Cities and Towns.**—By Rolland S. Wallis. Bulletin 52, (revised edition) of the Engineering Extension Department, Iowa State College, Ames, Iowa. June 6, 1923. 20 pp. Showing what zoning is, why it is needed, and the means and procedure of securing it, with the zoning law of Iowa. (Apply to the Engineering Extension Department.)

**Garbage Ordinances of St. Louis, Mo.**—From December 17, 1839, to February 8, 1922. 17 large mimeographed pp. Including a description, by C. S. Butts, Engineer of the Department of Public Utilities, of the new 80-ton incinerator plant at the foot of Chouteau Avenue. (Apply to the Municipal Reference Library, City Hall, St. Louis, Mo.)

**Industry Finding.**—A paper read before a joint meeting of the Appleton, Wis., Advertising Club, Rotary, Lions and Chamber of Commerce, June 19, 1923. By R. R. Shuman, President, Shuman-Hawes Advertising Company, Chicago, Ill. Published by the Appleton Chamber of Commerce. 16 pp. Suggests a course of action to be taken by a city desirous of securing additional industries. (Apply to the Chamber of Commerce.)

**A Preliminary Report on the Use of Creosote Oil as a Mosquito Repellent.**—By C. P. Coogle, Acting Assistant Surgeon, United States Public Health Service. Reprint No. 820, from the "Public Health Reports," March 9, 1923. 8 pp. Illustrated. Observations made during the course of a study of rural malaria in Yazoo County, Miss., conducted by the United States Public Health Service in cooperation with the state and county health authorities. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Summary of Provisional Birth and Mortality Figures, 1922.**—Tables issued by the Bureau of the Census, Department of Commerce, Washington, D. C. 14 pp. (Apply to the Government Printing Office, Washington, D. C.)

**Evansville, Ind.**—Annual Report for 1922. (Apply to Wm. H. Elmendorf, Mayor.)

**Kenosha, Wis.**—Annual Report from April 18, 1922, to December 31, 1922. (Apply to C. M. Osborn, City Manager.)

**New Orleans, La.**—Forty-Sixth Semi-Annual Report of the Sewerage and Water Board. December 31, 1922. (Apply to Geo. G. Earl, General Superintendent.)

**Newport, R. I.**—Annual Report of the Street Commissioner for 1922. (Apply to John F. Sullivan, Street Commissioner.)

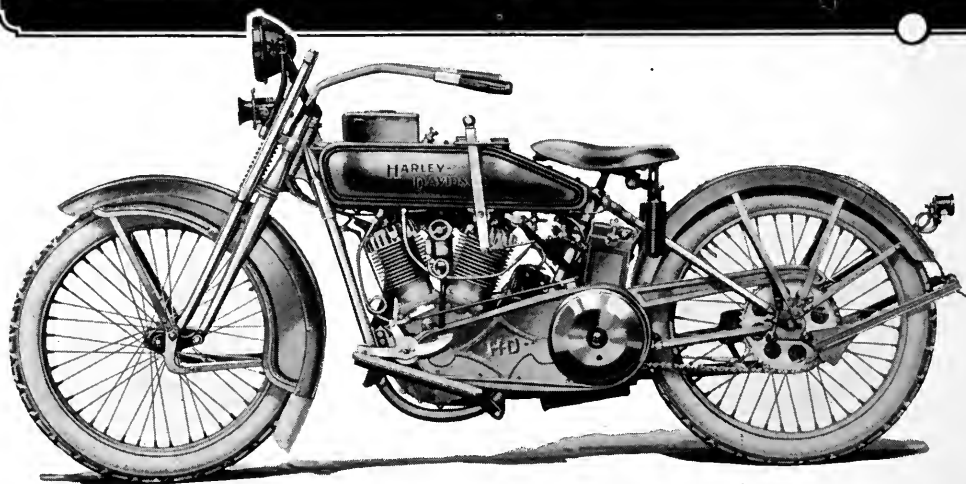
**Tulsa, Okla.**—First Annual Report of the Engineering Department, for year ending May 1, 1923. (Apply to Charles Schultz, City Engineer.)

**Bourne, Mass.**—Thirty-ninth Annual Report of the Town Officers, for 1922. (Apply to Ordello R. Swift, Town Clerk.)

**Chicago, Ill.**—Annual Report, Department of Weights and Measures, for 1922. (Apply to William Stocker, Inspector of Weights and Measures.)

**Portsmouth, Va.**—Municipal Reports for 1922. (Apply to L. C. Brinson, City Clerk and Auditor.)

# *The* 1924!



Speedier, peppier than ever (aluminum alloy pistons)—easier to care for (Alemite-equipped)—handsomer than ever (olive green, maroon striped)—that's the 1924 Harley-Davidson! And the new side car—just wait till its full-floating, semi-elliptic springs float you over roads that look rough!

America's Police Motorcycle—1924 model—will chase down a lot of law breakers, speeders and reckless drivers this year and next. How about *your* city? Do *you* fight crime the modern way—with the swift, sturdy Harley-Davidson? Over 1100 cities and towns, of all sizes, use this famous motorcycle for police service.

*Ask your dealer for a "1924" demonstration. Or write us for special literature. No obligation.*

**HARLEY-DAVIDSON MOTOR CO.**

Dept. M,

MILWAUKEE, WIS.

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**Harley-Davidson**  
The Motorcycle

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# Methods, Materials and Appliances

News for City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

## Recovering Brass Well Screens

According to those who have made a life study of the installation and recovery of brass well screens, there is only one safe and sure method of recovering them. Edward E. Johnson, Inc., St. Paul, Minn., manufacturers of Johnson brass well screens, have outlined the method, including the necessary equipment, for the benefit of those who have not had as much experience. They have on file cases where Johnson screens 18-inches in diameter and 30 feet long have been recovered and reset as many as five times. The method by which screens are pulled requires the use of a derrick or tripod, a string of pipe, the outside diameter of which is at least 2 inches less than



PUTTING IN THE SAND

sand from between the pulling pipe and the screen after it is out of the well.

This method of recovering well screens is shown excellently in a moving picture film which was presented by D. R. Johnson at the Annual Convention of the American Water Works Association in Detroit.



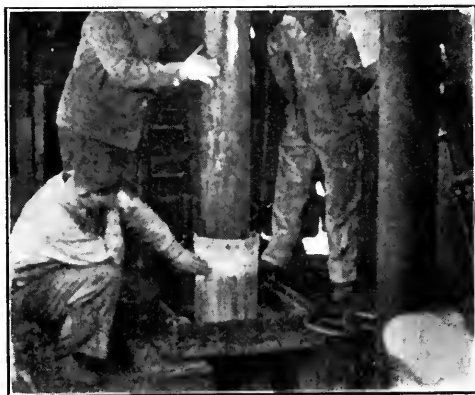
PREPARING THE SACK

the inside diameter of the screen, a coupling for the bottom of the pipe, a gunny sack, sand, pipe clamps and pulling jacks.

The coupling is attached to the bottom of the pipe and then the sack is slipped over the end of the pipe and tied securely above the coupling on the bottom. The sack is opened at the bottom and cut into 3-inch ribbons lengthwise. The ends of these ribbons are tied around the pipe a sack length above the coupling. This length of pipe is then lowered to the bottom of the screen, adding as many sections of pipe as are necessary. The space between the pipe and the screen is filled in with sand. If the screen is more than one section in length, it is advisable to tamp the sand around the joints. The clamp is placed on the upper end of the pipe, the jacks are placed under the clamp, and the pipe is pulled, finishing with a cable when the screen is loose. A stream of water is used to wash the

## Eastern Clay Products Moves

The Eastern Clay Products Association has announced the removal of its offices from 910 Penn Square Building, Philadelphia, Pa., to 906 Colonial Trust Building, Philadelphia, Pa.



PULLING OUT THE SCREEN

These three illustrations are prepared from clippings of a moving picture film showing all of the operations in the installation and pulling of Johnson well screens

# Beautiful Dustless Roads In Town and Country



Lays the dust without inconvenience to pedestrians. No tracking, no staining. Solvay is quickly applied by the common street laborer.

Solvay binds the surface and lays the dust. Economical and easy to handle.



## SOLVAY CALCIUM CHLORIDE

*"The Natural Dust Layer"*

A clean, odorless, white chemical salt which lays the dust and is a perfect surface road binder.

Solvay keeps roads in wonderful condition; no ruts, no running on hills, no puddles in hollows. It is the perfect material for town and country road treatment. Economical in use and application—efficient in action.

Fifty conveniently situated distributing points assure prompt delivery and minimum transportation charges.

*Write for the Solvay Road Book!*

**SEMET-SOLVAY CO., Dept. J, Syracuse, N. Y.**



A BARBER-GREENE SNOW LOADER AT WORK IN MILWAUKEE, WISCONSIN

## Snow Loaders for the Coming Winter

Memories of the severe winter of 1922-1923 may have melted away in the minds of some municipal officials during the summer heat, but the wide-awake city official is already planning to keep the snow of next winter from blocking traffic on the city's streets. The Snow-Loader manufactured by the Barber-Greene Company, Aurora, Ill., has many advantages in handling snow in city streets. One of the most difficult problems to solve in the removal of snow is getting it into trucks and wagons after it has been plowed from the center of the street and the roadway made available for traffic. This is where the Snow-Loader shown in the accompanying illustration is so valuable, as it makes it possible to load an 8-yard truck in about 2½ minutes, according to Thomas H. Byrne, Superintendent of Streets, Chicago, Ill. The past experience in Chicago has been that it required approximately 6 men to load an 8-yard truck in 20 minutes.

These Snow-Loaders are in successful use in Chicago, New York, Philadelphia, Pittsburgh, Albany, Schenectady and Boston, as well as other cities.

## Black Traffic Paint

The Paint Department of E. I. Du Pont de Nemours and Company, Inc., Wilmington, Del., has announced the development of a Traffic Black for marking purposes in the regulation of traffic. This is in addition to the Traffic White which is already being manufactured. The new black is the result of cooperative experiments with a number of cities, and has been developed to meet the needs of municipalities, cities and counties which are using this color for traffic control.

The manufacturer claims that the new paint dries dust-free in 15 minutes, tack-free in 30

minutes, and in from 5 to 6 hours dries to a hard, elastic film. After being in daily use for 10 weeks, it still retained its durability and color and was in every way satisfactory.

## Motor Street Sweeper and Fire Apparatus Sales

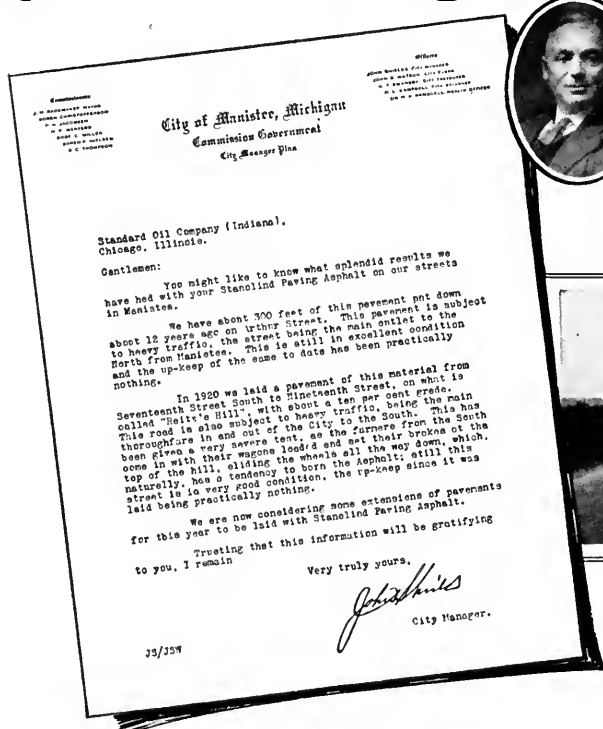
Port Arthur, Texas, has purchased a Childs motor pick-up street sweeper with Reo power-plant through the Houston office of the Foamite-Childs Corporation, Utica, N. Y. Contracts have been placed by the authorities of Edenton, N. C.; Bedford, N. Y.; Merkel, Texas, and Clayton, N. C., for the early delivery of new Childs motor fire apparatus. Edenton, N. C., selected a Childs triple combination chemical hose and pumping car on a Reo speed wagon chassis. Bedford will have a Childs combination pump and hose car equipment on a Graham Brothers chassis, the same as Foamite-Childs delivered last year to the town of Bedford Hills, N. Y. The Graham Brothers chassis will also be used for the Childs single-tank combination car being built for Merkel. Clayton has specified a Reo chassis for its new double-tank combination.

Other motorized equipments being built by the Foamite-Childs Corporation, Utica, N. Y., include a triple combination on Larrabee chassis for Afton, N. Y., and a double-tank combination on Reo chassis for Oriskany, N. Y. Road delivery of the double-tank combination on a Graham Brothers chassis ordered by Hyannis, Mass., was made in time for the new equipment to be displayed in the Fourth of July parade in that city.

## Richmond Uses Rapid Mixer for Repairing Asphalt Streets

The Bureau of Repairs, Maintenance and Cleaning, Department of Public Works, Richmond, Va., according to its chief, J. N. Eubank,

# Stanolind Asphalt at Manistee, Mich.



**This letter is  
addressed to you!**

**T**HE above letter, written by Mr. John Shields, City Manager of Manistee, Michigan, might well have been addressed to you as being responsible for the construction and maintenance of the roads and streets in your community. Without a doubt you would appreciate the unbiased opinion of one who has had long experience with Stanolind Paving Asphalt and therefore knows what he is talking about.

Mr. Shields stresses strongly the low upkeep of the two pavements under the severe traffic conditions and sends us the photographs showing their present excellent condition.

To you, however, the next to the last paragraph is most important. For, regardless of the other good things Mr. Shields says about Stanolind Asphalt, the fact that he plans to use it again is certain proof of its worth.

Mr. Shields' experience with Stanolind Paving Asphalt is by no means exceptional. Letters, records and photographs are constantly coming to our attention, all giving proof to our assertion that Stanolind Paving Asphalt laid at a low initial cost, noted for its freedom from repairs and its long life, is the ideal road-building material.

*We have recently issued a booklet which tells the latest methods of constructing and maintaining bituminous pavements. It will be sent to you free, upon request.*

**STANDARD OIL COMPANY**  
(INDIANA)  
**942 S. Michigan Avenue CHICAGO, ILLINOIS**



has been using an Iroquois rapid mixer made by the Barber Asphalt Company, Land Title Building, Philadelphia, Pa., for about 30 days in preparing material for the repair of asphalt streets. In speaking of the Iroquois mixer, Mr. Eubank says in part:

"We are getting about 130 square yards of patch work a day, running from 1½ to 2 inches thick. By following instructions which were given us with the machine, we have not had any trouble with batches being overheated or underheated, as they range from 285 to 300 degrees. This is one of the best features in the machine; that is, you have no fear of burnt materials. Also, we find this plant very handy to move about, and it can be operated with very few laborers. Our labor cost at present is about 21 cents per square yard for taking out old material and replacing with new material, including rolling. With the exception of a little engine trouble, which was due to ignorance on our part, we have had no other trouble since this machine first started."

In addition to the city of Richmond, Va., these mixers are being used in Walpole, Mass.; Springfield, Mo., and Petersburg, Va., and are claimed by the manufacturers to have brought about great economies in street repair work.

### A New Traffic Light 4½ Inches High

Many cities have adopted the mushroom traffic light as a standard traffic-control device at street intersections. There are some types of intersections, particularly where there are street cars where cities have had to forego this type of protection because of the height of the traffic lights. One of the most difficult corners to protect has been the one where a single-track car line passed the corner. Invariably, in order to properly place the traffic light, it was necessary to install it between the car rails. The height of the standard traffic light was too great, but with the new Type L light made by the Essco Manufacturing Company, Peoria, Ill., this objection has been overcome. The unit stands only 4½ inches above the pavement.

In some instances it is desirable to use this low type light in extremely congested parts of the city, such as in the vicinity of freight houses, wharves and wholesale districts, where very heavy traffic is encountered. The slope of the dome of this light is very gradual and the height low as compared to the truck wheels. This means that even though the dome is struck by a heavily laden truck, the impact is not great and there is little danger of dislodging the load or damaging the vehicle. The dome of the Type L unit is

painted a bright yellow so that it will stand out plainly in the daytime, and at night the whole dome appears as a brilliant source of light.

### Fences for Playgrounds, Schools and Parks

A fence, to be satisfactory for municipal use in enclosing playgrounds, school grounds and public parks, must combine three essential features, namely, strength, good appearance, and durability. The Wickwire Spencer Steel Corporation, New York City, claims that Excelsior rust-proof ornamental wire fabric combines these three essential features, which make it particularly desirable for this use.

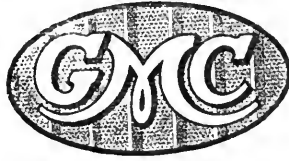
The fabric is made in 2 x 6-inch mesh of wickets and No. 9 gage horizontal wires, each intersection of the wire being held securely together by a patented steel clamp. The wickets are in one continuous piece from bottom to top of the fence, which gives the fabric unusual stiffness vertically, where most needed, for it serves to distribute all downward strains equally throughout the fence. This rigidity cannot be secured in a fence where the vertical wires are small and are wrapped or twisted around the strands.

The fencing is claimed to be particularly durable and rust-resisting, as it has a very thick coating of pure spelter, applied through the special process of hot-galvanizing the fabric



STREET CAR PASSING OVER NEW TYPE OF MUSHROOM  
STREET TRAFFIC CONTROL DEVICE





# General Motors Trucks

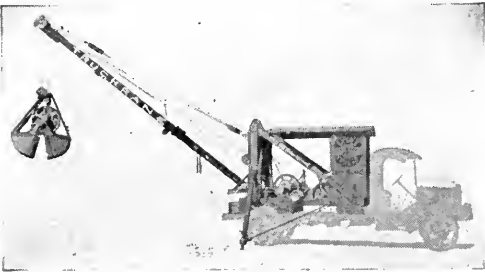
Because of their tried and proven qualities for all kinds of hauling, many municipal, county and state governments prefer GMC trucks. These powerful, dependable and economical trucks give them the service that many of the country's largest industries get from GMC's.

## GENERAL MOTORS TRUCK COMPANY

*Division of General Motors Corporation*

**Pontiac, Michigan**

DEALERS AND SERVICE STATIONS IN MOST COMMUNITIES



## TruckCrane

**T**RUCKCRANE is rapidly gaining favor with road builders and contractors all over the country. Its traveling speed and performance when on the job more than measures up to their expectations.

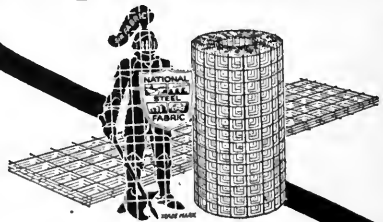
Truckcrane combines the capacity of a small industrial crane, built to Byers standards, with the traveling speed of the motor truck on which it is mounted.

Truckcrane comes to you equipped with its own 35-H.P. gasoline motor. It can be mounted on any 5-ton truck measuring 9 ft. 6 in. or more from back of driver's seat to center of rear axle.

Send for Bulletin and get the whole story.

**THE BYERS MACHINE CO.**  
165 SYCAMORE ST., RAVENNA, OHIO

## NATIONAL Steel Fabric



*Furnished in Rolls or Sheets*

### FOR IMMEDIATE SHIPMENT

*From the following stocks:*

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Offices:

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*Phone, wire or write us about your requirements.*

**NATIONAL STEEL FABRIC CO.**

*(Subsidiary of Pittsburgh Steel Co.)*

708 Union Arcade, Pittsburgh, Pa.



ATTRACTIVE WIRE FENCE AROUND THE YARD OF THE TAPLEY STREET SCHOOL, SPRINGFIELD, MASS.

after the weaving. The method of galvanizing not only protects the fabric against corrosion under the most severe climatic conditions, but also adds greatly to the strength and rigidity of the fence.

Excelsior ornamental wire fences are particularly adaptable for playgrounds or school yards, because they add to the dignity of the ground which they enclose and because their unclimbable construction gives maximum protection. They can be made up to and including 8 feet in height and can be furnished with

barb-wire above the fabric if desired. In the complete fences the framework is made from full-weight galvanized steel pipe, which is the only type of framework to use if maximum durability is to be secured. All posts should be in concrete foundations.

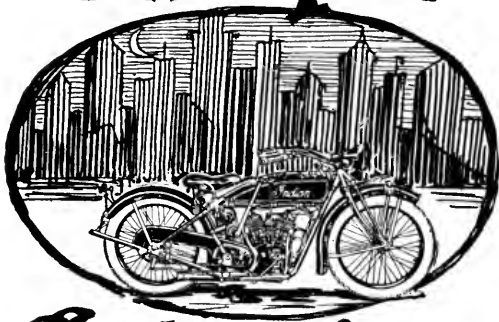
### New Power Scarifier Operated by Tractor Motor

To solve the difficulties sometimes met by road officials and contractors in the use of air



A ROAD-ROLLER-TRACTOR WITH POWER SCARIFIER ATTACHMENT WORKING ON GRAVEL ROADS IN MUNCE, INDIANA

# The Crime Crimper



## Indian Scout

The Indian-protected city or town can feel justifiably safe in the efficiency of its police department. It knows that reckless driving, broken laws, petty and big crimes will not go unchecked.

For patrol and escort work and many other duties of the "flying squadron," the Indian Scout is admirably adapted. It conserves the department's budget by doing efficiently the work "inside the lines" where heavier machines are not essential. Low in first cost, lowest in upkeep, reliable, swift, powerful.

Our long experience in equipping police departments qualifies us to recommend the models best suited to individual conditions. We shall be glad to make suggestions for the most practical and economical method of Indian-izing your department.

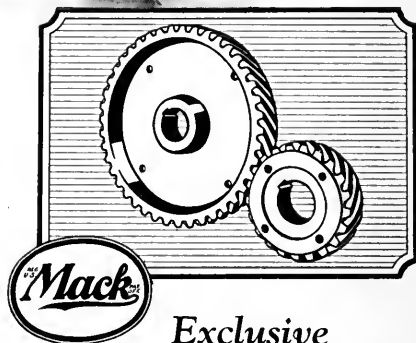
Write Dept. A-9 for our booklet,  
"Maintaining Law and Order."

**HENDEE MANUFACTURING CO.**  
Springfield, Massachusetts

**RIGHT-ALL WAYS ALWAYS**



Send for booklet illustrating and describing the 27 exclusive Mack features.



Exclusive  
Feature No. 4

## CASE-HARDENED TIMING GEARS

"In addition to being helically cut, the three gear train feature is unusual in that the camshaft and crankshaft gears are both drop forged and case-hardened, in a similar manner to the crankshaft, camshaft and other Mack engine case-hardened parts.

"By imparting to the teeth this glass-hard surface, the wear is not perceptible during the entire life of the engine."

INTERNATIONAL MOTOR COMPANY  
25 Broadway New York City

Branches owned by this company operate under the titles of: "MACK MOTOR TRUCK COMPANY" and "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION."

**PERFORMANCE COUNTS**

pressure and steam scarifiers, the Avery Company, Peoria, Ill., has designed a power scarifier that is operated by the power of the tractor motor. All that is necessary to operate the scarifier is to shift the lever, and the scarifier teeth are driven into the ground. By another movement of the lever, the scarifier teeth are instantly raised.

The scarifier attachment has a suitable reducing mechanism driven by a clutch on the motor crank-shaft, which drives another shaft mounted under the sub-frame of the machine through a turning clutch. This crank-shaft drives a rock shaft at the rear end of the machine through spring leaded pitman rods, which raise or lower the teeth. These springs act as shock-absorbers to the mechanism. The teeth are driven into the ground by a toggle mechanism under great pressure.

The tooth bar is of 4-inch square steel turned down at the ends for a 20-inch gage wheel. The teeth are carried in holders, clamped to the square bar, and are adjustable to side swing, depth and angularity to the ground. Each machine carries seven teeth of 1¾-inch square tool steel, 32 inches long and pointed at both ends. All of the pull strains are taken on the draw-bar. When the teeth enter the ground 9 inches, they will clear it 11 inches when lifted.

The machine in which this scarifier is used is known as the Avery 25-50-horse-power, 10-ton road-roller-tractor. This machine was designed to fulfill three functions—to build roads, to scarify roads, and to roll roads. The front roller is controlled easily, which makes the tractor very adaptable for road building. The roller laps the wide heavy rear wheels and makes a serviceable road roller.

This outfit has been used considerably in Indiana to take the bumps and ridges out of crushed stone roads. The city of Muncie, Ind., has found it particularly effective to first run over the road with the scarifier, tearing up the old pitted and rutty surface. Then an Avery road razer is used to spread the gravel on the crushed stone evenly from shoulder to shoulder, to shape the crown and fill all the holes. Then the Avery 10-ton road roller, with the scarifier lifted, is run over the road, packing the surface to withstand the weather and the wear and tear of traffic.

## Floodlighting for Swimming Pools, Parks and Playgrounds

The lighting of public grounds, including swimming pools, parks and playgrounds, has puzzled many groups of municipal officials when they have been discussing ways and means of making public entertainment places safe and useful at night. The use of floodlighting equipment is comparatively inexpensive and produces a well-lighted area in which all activities can be carried on with almost the same degree of pleasure as in actual twilight in the early evening. Thus floodlighting presents a solution of public playground problems to municipal officials, for recreation places can be used almost as readily at night as during the day.

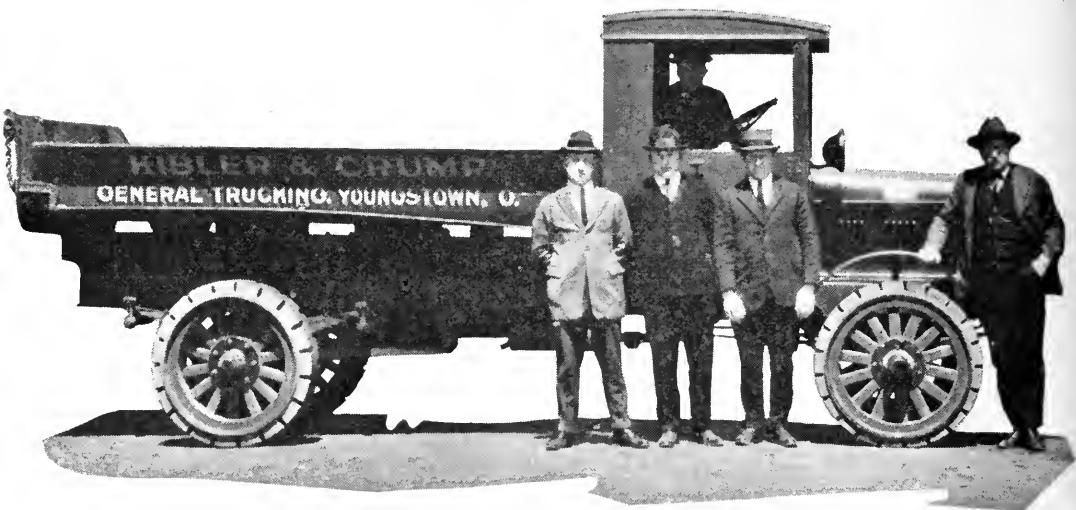


**SOLDIERS AND SAILORS MONUMENT, INDIANAPOLIS, IND., FLOODLIGHTED TO GIVE GREATER PROMINENCE AT NIGHT**

For the lighting of a beach or a playground it is best to have the projectors mounted fairly high, at least 20 or 25 feet, and higher if possible, so as to allow the light to be directed down on the scene of action. Another reason for mounting the projectors at a considerable height is to keep the light source out of the direct line of vision of people who are standing near-by. For the average bathing-beach a great intensity of light is not wanted. It is sufficient to have only enough light to make everything visible for the convenience and protection of pleasure seekers.

For every 10,000 square feet there should be at least five or six 200-watt floodlighting projectors, or about four 500-watt projectors, depending upon the intensity of light desired. If it is desired only to approximate moonlight, fewer projectors are sufficient.

According to the engineers of the National X-Ray Reflector Company, 235 West Jackson



## Gets service and satisfaction from Kelly Kats

When sending us the picture reproduced above Mr. G. O. Crump, of Kibler and Crump, Youngstown, Ohio, wrote as follows:

"After using two sets of Kelly Caterpillars on trucks used for road construction we have come to the conclusion that no other tires will give us the satisfaction that Kats do.

"The traction given by these tires has enabled us to operate our trucks without chains over roads where trucks equipped with other tires had hard going with chains. We also have noticed the cushioning of Kats has cut our bills for upkeep.

"The above, coupled with the mileage that we have been getting, have proved that your tires are the most economical we can buy."

Owners of heavy and medium duty trucks are invariably delighted with the service they get from Kelly Kats because they are especially designed for trucks of these types.

Wherever heavy loads are hauled, wherever road conditions are bad, and wherever the ability to stand punishment is a necessary quality in tires, Kelly Kats are unequalled.

KELLY-SPRINGFIELD TIRE  
COMPANY

250 West 57th Street, New York

There are no Caterpillar tires but

# KELLY KATS

## THE TIRES WITH NINE LIVES

When writing to Advertisers please mention THE AMERICAN CITY.

Boulevard, Chicago, Ill., one very attractive feature of floodlighting is the fact that there is not a lot of wire to be run and lamps to buy, as is the case when stud lighting is used or where a great number of lamps are strung around in order to give enough light on the ground below. Another advantage of floodlighting over any other type is that the projectors are usually grouped together out of the way so that they are not easily hit by flying objects or tall moving structures.

Floodlighting equipment manufactured today is water-proof and permanent, and when it is considered that it increases the usefulness and attractiveness of swimming pools, playgrounds and the like which are lighted at night, it is easy to see that the first cost of installation, as well as the cost of maintenance, including keeping the reflectors clean, is negligible. Public officials should study the question of floodlighting for various public grounds with care, as it makes it possible to practically double the usefulness of many parks and playgrounds, as well as increasing police protection without the use of additional patrolmen.

### Brown Enters Consulting Practise

Charles Carroll Brown, well known in the municipal publication field and as Secretary of the American Society for Municipal Improvements, has announced that he has entered consulting practise with E. C. Garvin, Director of Public Works, St. Petersburg, Fla. These engineers will engage in sewerage, sewage and refuse disposal, design of water-works, water-power and irrigation projects, paving, investigations of reports, contracts, franchises, rates, settlements and litigation.

Messrs. Brown and Garvin have recently designed a drainage system for the city of St. Petersburg, of which about \$450,000 worth of storm sewers have been let. They have constructed some 200,000 square yards of pavements and are now letting contracts for 600,000 square yards more, to cost about \$1,800,000. Only recently they have revised and extended the sewerage system and the sewage disposal plant and have inaugurated a system of garbage and refuse collection and designed an 80-ton incinerator for disposing of it. They will devote themselves mainly to work in Florida. They may be addressed at P. O. Box 234, St. Petersburg, Fla.

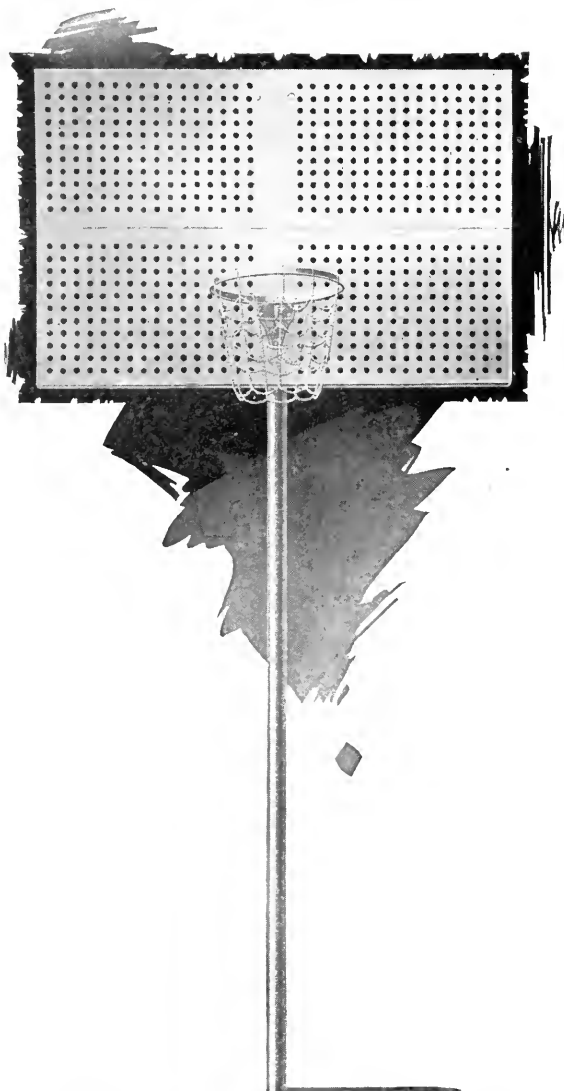
### Outdoor Basket-Ball Back-Stops

A 4 x 6-foot back-stop for basketball goals has recently been brought out by the Everwear Manufacturing Company, Springfield, Ohio, and is listed as its No. B-310. This back-

stop is covered with perforated cold-rolled sheet steel, thoroughly galvanized. The goal shown attached to the back-stop in the illustration is of galvanized lock weave No. 4 and No. 7 steel chain. All the fittings of the back-stop are of malleable iron, and the frame is made of 2- x 4-inch hardwood. The pipe, which is made to be grouted 3 feet in the ground, is 16 feet long, and has a 3½-inch outside diameter. The goal, measured from the top of the goal ring to the ground, is 10 feet.

### Water Softening for Power Plants

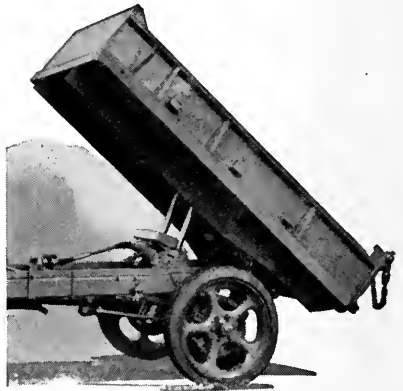
The city of Pittsburgh, Kans., has contracted with the Graver Corporation, East Chicago, Ind., through their representative, the Beeson Machinery Company, 308 Mutual Building, Kansas City, Mo., for the installation of two 6-foot Zeolite water softeners for the boiler feed water at the city water works.



A METAL BACKSTOP FOR BASKETBALL GOALS

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## Electrical Apparatus for New Seattle Substation

**W**ITH its Skagit River Development well under way, Seattle, Wash., has begun the erection of a large substation, known as the North substation, to serve as the receiving end in the City for the development. The new station will be located in the residential part of the city and is designed to harmonize with its surroundings.

There will eventually be installed in the substation a maximum of six banks of transformers with the necessary synchronous condensers and switching equipment. The ultimate installation will be fed from the Gorge plant on the Skagit River through two transmission lines approximately 100 miles in length, designed to transmit 90,000 kv-a, three phase, 60 cycle current at a receiver voltage of 154,000 volts. The transformers feeding the lines at the generating station are rated at 165,000 volts and have permanently grounded neutrals.

The initial installation will include the equipment for one incoming transmission line at 154,000 volts, one transformer bank, and one 15,000 kv-a synchronous condenser. An order for this apparatus has been placed with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., and it is now in course of construction. An electrostatic glow meter will be used for synchronizing on the 154,000 volt side. The stepdown transformer bank has three 10,000 kv-a transformers with tertiary windings. Both the 154,000 and 26,000 volt lines are connected with permanently grounded neutrals. The 26,000 volt side is connected to a bus section on which there are three feeders. In the future each transformer bank will have a 26,000 volt bus section, all the sections to be tied together through reactors. At the present time two sections with a total of six feeders will be tied together without reactors and will be fed from the one transformer bank.

The auxiliary equipment consists of a 300 kv-a transformer bank; a 100 kw. motor generator set to be used for an extra exciter, for operating a crane, or for charging the storage battery in an emergency; a 7½ kw. battery charging set; and a 60 cell storage battery for control purposes.

A benchboard having a relay board in the rear with grill work at each end will be supplied. This desk will be used for controlling the condenser and the incoming line and is drilled for future apparatus for controlling the second line and the tie breaker between the two lines. A switchboard consisting of two switchboards mounted back to back with grill work between will be provided for controlling the 26,000 volt feeders and the voltage regulator equipment for the condenser.

There will also be a temperature indicating board for indicating the temperature of the coils in the condensers and the temperatures in the individual transformers; a station service board for controlling the storage battery, station light and power, spare motor generator

set, and other miscellaneous circuits; a field control board; and a crane panel. Differential protection will be provided for the condenser and for the entire transformer bank. The 154,000 volt incoming line will be protected with relays and a ground relay.

## New Portland Cement Offices In the South

The Portland Cement Association, 111 West Washington Street, Chicago, Ill., has announced the appointment of three new district engineers, as follows: James A. Hudson, in charge of the office in Memphis, Tenn., the Exchange Building; P. H. Johnston, in charge of the Jacksonville, Fla., office, in the Graham Building; and J. R. Fairman, in Birmingham, Ala., in the Jefferson County Bank Building. Walter B. Elcock has been appointed Assistant General Manager in charge of the Southeastern offices of the Portland Cement Association, with headquarters in the Hurt Building, Atlanta, Ga.

## Contracts Let On Spavinaw Water Project

A. S. Holway has resigned as Superintendent of Water Works, Oklahoma City, Oklahoma, to take an active part in the work of the Holway Engineering Company, Tulsa, Oklahoma. Mr. Holway will continue in charge of the water-works improvements now under way at Oklahoma City.

On the Spavinaw water project in Tulsa, Oklahoma, of which E. J. Trammell and W. R. Holway, 508 Wright Building, Tulsa, Oklahoma, are the engineers and Dabney H. Maury, Chicago, Ill., the consulting engineer, the contract has been let to the De Laval Steam Turbine Company, Trenton, N. J., for two 12,000,000 gallon high service steam-turbine driven centrifugal pumps at \$84,300 and to the Walsh-Weidner Boiler Co., Chattanooga, Tenn., for two 300-horse-power water tube boilers with Green chain-grate stokers for \$24,215. This equipment is to be installed in the Mohawk Pumping station, the contract for the construction of which will be let about October 1 in connection with contracts for the paving of the Mohawk reservoir and four miles of force mains between this reservoir and the high pressure reservoir now under construction.

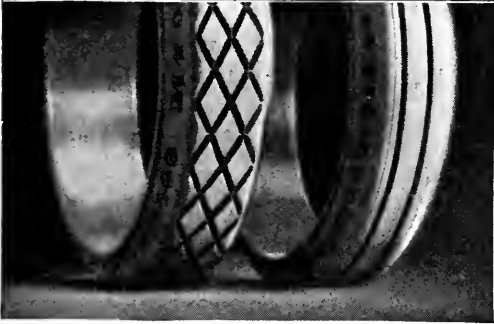
## New Asphalt Representatives In Texas

The Asphalt Sales Department of the Texas Company, 17 Battery Place, New York City, announces that it will be represented in North Texas by George A. McClellan, with an office at 509 Southwestern Life Building, Dallas. Since resigning as Division Engineer for the State Highway Department Mr. McClellan has been County Engineer for Harrison County, where he has been building asphalt highways around Marshall.

O. F. Renaud of Houston, with offices in that city, will represent the Asphalt Sales Department in South Texas.



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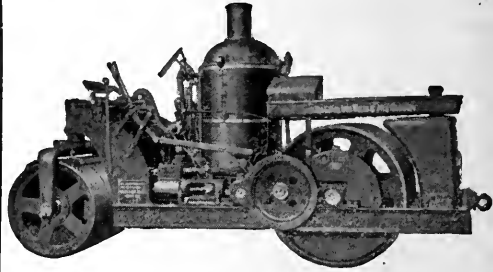
Under certain conditions, the Goodyear Solid with smooth tread provides everything you want from a tire. If that's the tire you need, Goodyear will unhesitatingly recommend it.

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Vol. XXIX  
No. 4

OCTOBER  
1923

# The American City Magazine

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NEW YORK

50 Cents  
\$4 a Year

## The Great American Failure

An Editorial from the *New York Times*

THE report of the American Bar Association's Special Committee on Law Enforcement strongly reiterates a fact disgraceful to the people of the United States, yet about which they seem to manifest little concern. The administration of the criminal law is ineffective. Crime is growing faster than population. Criminal justice is neither speedy, certain nor final. Comparison with long-settled countries like England and France may not be fair in all respects; but the American excess in violent crime is monstrous. Thus in England and Wales, in 1921, there were 63 murders; in Chicago, 137; in New York, 260. In London, in 1922, there were but 17 so-called murders. Only 9 of them were such as would justify here an indictment for murder in the first degree. There was not a single murder "mystery." The perpetrator of every murder was found.

We know by threadbare experience the too frequent inability of our detectives to solve notable murder cases. There is a great flutter and excitement, much spilling of talk. After a few weeks of it, the case, however conspicuous, is dropped, disappears; and a new sensation takes its place and, in time, vanishes. Yet this city and the other greater cities are not so prolific, proportionately, in murders as the smaller; the rural districts contribute at least their full quota. There were 585 murders in France in 1919; in 48 American cities, with a total population of some 21,000,000, there were 1,562. Our criminal statistics are imperfect, but the committee estimates "conservatively" that in 1922 there were

about 7,850 murders, besides 6,790 unjustifiable homicides. In 1921, in England and Wales, 115 persons were tried for burglary, 105 convicted. In New York County in the same year 2,660 burglaries were reported, 565 persons were indicted for burglary, 349 of them were convicted. Yet the percentage of convictions to trials is higher here than in most of our great cities. Our burglars are much bolder, more numerous and active than their brothers on the other side. Most of them are not caught. Of those that are, too many escape punishment.

In almost every state the criminal laws are not vigorously enforced. The committee says this year, as it said last, that "the means provided in the United States for coping with crime and criminals are today neither adequate nor efficient." Everybody must know it. Yet the committee believes that "nothing can be accomplished without a full realization of the situation by the American people." When are they going to make any serious effort to mend that situation? At present, over wide regions, a self-appointed organization takes upon itself the duty of enforcing a law of its own and commits crimes on its own hook. We omit lynching. That is a peculiarly American crime. The unpunished Herrin massacre shows what support in enforcing the laws against a sacred class may be expected in some communities.

The committee wants the Bar Association to appoint a permanent commission to draw up a standard code of criminal procedure for all the states. Nothing needs

reforming more than that procedure, whose general object seems to be to protect, by every device in delay and technicality and appeal, the criminal against the public. It will be a long time before such a code is adopted; and when it is adopted, will it not be subject to the same weakening and paralyzing influences as the present want of system? Will it be enforced by stronger hands, or sustained by stronger public opinion?

There's the rub. Interested in a thou-

sand trivial things, distracted by a multitude of little "reforms," easy, self-confident, self-admiring and careless, the American people doesn't see itself; doesn't care, apparently, that it is largely helpless against criminals, that its criminal justice is a disgrace and a shame. If the sinister facts and figures now laid before it are allowed to sink into its consciousness and become as important as a baseball score, the committee will have accomplished a good deal more than it probably expects.

## Needed--the Power of Excess Condemnation

THE opening of new streets through settled parts of cities is a costly undertaking and so is the widening of old streets, but the cost alone is not the worst obstacle. When streets are widened or new streets are opened, the abutting land usually is left in parcels that cannot be improved to advantage. Sometimes well-shaped plots are never assembled, and it always takes a long time to develop such a street.

To overcome these obstacles, it is necessary to condemn the land for the street and the land appurtenant to the street sufficient in area to form suitable building sites. This procedure has come to be called excess condemnation; perhaps unfortunately so called, because in reality it is not the condemnation of land in excess of what is needed for the improvement, but the condemnation of so much land as is necessary to make the improvement effective.

Every American city should have the power of excess condemnation, though that power should be used discreetly. Every state constitution that does not permit excess condemnation should be amended, and the amendments to the constitution of New York, Ohio and Massachusetts furnish models. Every city should be given the power. Suitable statutes covering the various details necessary may be found in the charter of the city of New York.

It should be borne in mind that in many cases of street openings it is not necessary to con-

demn adjacent land, and that when the power of excess condemnation is exercised it must not be exercised in an arbitrary fashion. The map showing the land to be taken should be based on existing property lines and the avoidance of destruction of existing valuable buildings. The line separating the property to be taken from that to be left cannot be a straight line. It must follow the property lines so as to take land sufficient to form suitable building sites where necessary and never to leave unusable parcels. When the improvement has been made, the land should be sold or leased with such restrictions as shall result in the prompt improvement of the property with buildings best adapted for service on the new or widened street.

The use of excess condemnation often may make possible and profitable the opening of streets through congested territory, the widening of old streets, and sometimes the destruction of insanitary buildings by opening small parks, and sometimes the improvement of the land next to such parks with modern and sanitary dwellings.

There are almost no possibilities for evil in this legitimate power, which has been exercised profitably in foreign countries; there are enormous possibilities for good.

—From a pamphlet, "Why We Need Excess Condemnation—A Boon to the Property Owner—A Blessing to the Public," by Lawson Purdy; published July, 1923, by the National Municipal League.

## Growth of the Legal Aid Movement

THE actual work of furnishing lawyers' services to poor persons is performed by the Legal Aid organizations of the United States. Whereas last year there were over thirty such organizations, now there are over forty. During the past year Legal Aid societies or bureaus have been established in such important cities as Indianapolis, Albany and Grand Rapids. In 1922 the several Legal Aid organizations gave advice and assistance to over 125,000 persons—the largest number in their history.

On June 7 and 8, 1923, at Cleveland, there was held a convention of duly accredited delegates from Legal Aid organizations in over twenty-five different cities. Practically all of the large and well-established agencies were

represented. By unanimous vote a constitution was adopted that created the National Association of Legal Aid Organizations. Chief Justice Taft of the Supreme Court of the United States was elected Honorary President, and Dean John H. Wigmore, of Chicago, and Hon. O. K. Cushing, of San Francisco, were elected Vice-Presidents.

The establishment of this new national association definitely opens a new era in Legal Aid history. United as they now are in an efficient central association, the Legal Aid organizations of the country should be able to develop rapidly into a position of great importance.

—From a report of the Committee on Legal Aid Work to the American Bar Association, published in the *Legal Aid Review* for July, 1923.



GMC TRUCK AND CHAMPION SNOW-PLOW MAINTAINING OPEN ROAD IN GREENWICH, CONN.

# The Snow-Removal Problem in American Cities--Part I

An Analysis of the Need for Snow Removal and an Outline of Methods Used in Various Cities

THERE is a very general need for snow removal from city streets and suburban roads throughout the northern United States to facilitate transportation and the protection of life and property. The increasing use of bus transportation and the carriage of food products by motor trucks make it essential that the streets be open for traffic throughout the entire year. Fire apparatus must be able to reach property to prevent its destruction by fire in winter as well as in summer, and doctors must be able to speed to their patients quickly throughout the year without being required to leave their machines stalled in a snow-bank and trudge through miles of snow-drifts, losing precious minutes.

The blizzards of February, 1920, are now classics and are the criterions when measuring the losses of property, business and

life due to the failure or the inability of a city to remove snow and permit normal vehicular traffic. The Merchants Association of New York City estimated that during the 12 days of February, 1920, when New York vehicular traffic was tied up by snow, the merchants suffered a loss in trade as great as \$60,000,000. A single snow-storm in 1918 is estimated to have cost the down-town stores in Chicago a loss of trade of \$20,000,000, according to the State Street Association. These figures were arrived at by taking the average trade during the corresponding period for several years; inasmuch as no increases in the weekly averages of purchases after the storm were noted, it proved that trade suffered materially and permanently because people could not reach the stores while the streets and highways were snow-bound.

## SEASONAL SNOWFALL

Winter	Chicago, Ill.	Minneapolis, Minn.	Cleveland, Ohio	New York City	Boston, Mass.	Denver, Colo.	Buffalo, N. Y.	Syracuse, N. Y.	Washington, D. C.	Philadelphia, Pa.	Seattle, Wash.	Omaha, Nebr.
1912-13....	20.7	47.4	33.7	15.4	19.4	66.1	62.9	58.7	2.8	9.5	16.2	20.2
1913-14....	27.9	23.0	60.3	40.4	39.4	98.9	90.9	87.0	28.6	33.1	1.1	17.6
1914-15....	19.0	50.2	32.8	28.8	42.2	44.0	76.2	66.2	14.5	32.5	T.	51.5
1915-16....	26.1	50.7	42.4	50.7	79.2	44.1	104.5	102.0	17.4	31.1	60.9	19.8
1916-17....	23.7	84.9	50.0	49.7	54.2	79.4	36.8	90.7	18.3	39.6	16.0	22.9
1917-18....	64.1	30.8	51.2	32.3	45.7	64.1	110.5	101.4	36.4	38.9	6.0	26.3
1918-19....	28.7	26.7	8.8	4.1	21.1	46.3	25.0	64.4	3.3	4.5	T.	20.6
1919-20....	32.2	64.5	41.0	45.6	73.4	71.3	69.4	101.2	16.4	29.0	3.9	31.7
1920-21....	9.8	20.6	25.9	17.7	34.1	56.7	53.5	43.7	6.8	13.7	9.0	20.9
1921-22....	11.5	43.3	26.7	28.7	37.2	54.4	39.8	77.6	44.5	28.0	12.9	11.4

Official figures furnished by the U. S. Weather Bureau, Washington, D. C.

### Snowfall Is Not Increasing or Decreasing

According to Joseph C. Kenzer, of the U. S. Weather Bureau, in the *Monthly Weather Review*, there is a widespread popular belief in many parts of the country, especially in the earlier settled sections of the Northeast, that less snow falls now than years ago. In New England, for example, it is customary to speak of the "old-fashioned New England winters" which brought many heavy snow-storms when snow lay on the ground uninterruptedly all winter and when sleighing was possible for three or four months without a break. Nevertheless, in much of New England the winter of 1915-16 equaled the seasons of historic snow-storms. Impressions of snow-storms gained in childhood, particularly in the country, will not be equaled by those gained in adult life, especially if it is spent in the city. The great storms of history appear close together, just as telegraph poles seem to stand close together when we look back at them but are some distance apart as they go by.

In Philadelphia, weather records have been kept for 250 years. For that whole period the average annual snowfall is 22.2 inches. For the period between 1912 and 1922, the average snowfall was 25.99 inches. These figures and the others reproduced below disprove the statement that we are getting less snow than formerly. Weather reports also show that Chicago sometimes gets as much snow during the winter as Denver, and oftentimes as much snow falls in Washington and Philadelphia in 24 hours as can possibly fall anywhere.

### How Much of the Road Should Be Cleared?

The damage caused by frost and traffic to a road in winter are quite different when snow is removed from the entire paved way, when it is partially cleared, and when it is not cleared at all. Those who have made a study of snow removal state that if only a small portion of the center of the road is cleared, vehicles follow the same tracks and wear is concentrated in ruts. Further, the subgrade under the exposed center section freezes to a greater depth than under the pavement at the side and on the road shoulders which are covered with snow. This condition is particularly emphasized where there is a heavy fall of snow before the front has penetrated deep into the

ground, as was the case last winter in New England. This results in a deep penetration of frost in the center of the road and only a slight crust of frost at the edges. Therefore, when thawing begins in the late winter and spring, the road slab is supported at the center and cantilevered at the edges, so that heavy traffic quickly breaks the road at the sides and produces cracks at the crown. The solution of this is the cleaning of the road surface from curb to curb or ditch to ditch in so far as is economically possible.

### Results of Snow Removal Hearings in Massachusetts

Public hearings on the question of the proper method of snow removal were held by the Massachusetts State Department of Public Works in Pittsfield, Springfield, Greenfield, Worcester and Boston during February, 1923. These were largely attended by city, town and county officials. It was quite generally agreed at the meetings that the snow should be removed from the main thoroughfares in order that traffic might continue throughout the winter. It appeared also to be the consensus of opinion that all snow should be removed from the road surface rather than that a portion should be left to be cut into ruts by trucks.

It was agreed by practically all of the city and town officials that if equipment were furnished by the state, the local municipal units could clear the roads of snow cheaper than could be done by the State Department of Public Works. This would give employment to local labor and materially benefit the communities by keeping the personnel of their street and road departments reasonably employed throughout the winter season. It was generally agreed, however, that the work should be done under the supervision of the State Division of Highways, which should have authority to clear the state highway after a city or town had failed to do so, and charge the cost against such city or town, and that the Division should also have authority to cooperate with cities, towns and counties in keeping open and reasonably free from snow such highways as constitute the main traffic route of states.

It was developed that on certain routes where traffic is heavy and continuous con-

siderable portions of the roads were kept open by private interests, such as street railway companies, although in most cases they were furnished plows by the State Division of Highways. It was the view of all concerned in the clearing of roads by private interests that it was not an equitable arrangement, as the cost was not borne by all of those who participated in the benefits, and the work lacked the direction of a central authority.

As it is quite evident that the clearing of certain through routes, especially in severe seasons, will cost more than some towns can be expected to pay, authority has been sought by the Division of Highways

that while the V-type plow was adaptable for country roads, a straight blade plow should be used near trolley tracks and in cities. Several engineers of street railway companies at the different meetings requested that the Massachusetts Legislature, in legislation pending before it, shall make it mandatory that township, county or state officials who have charge of snow removal from all roads that parallel street railways shall use straight blade plows to remove the snow from that part of the roadway which lies between the car tracks and the line of travel of wheeled traffic. This means taking the snow which the street railway throws from its tracks to the road and mov-



DEPARTMENT OF STREET CLEANING TRUCK DUMPING SNOW AT SEWER MANHOLE,  
NEW YORK CITY

to relieve such towns in its discretion, from a part or all of the expense incurred in removing snow from such roads as lie within certain routes.

While the snowfall during the winter of 1922-23 was heavier than for a number of years, especially in the eastern part of Massachusetts, its interference with the use of highways was due entirely to the fact that motor trucks and automobiles have almost entirely eliminated horse-drawn vehicles on all through driving and trucking routes. Horses are still used in the country districts, and for this reason there is strong objection to the complete removal of snow from roads in those portions of the state.

It was believed by many at the hearings

ing it across the entire width of the road. The object of this is to eliminate the dangerous furrow of snow between the car tracks and the roadway.

#### Methods of Snow Removal

*Snow rollers* are frequently used in smaller communities in the northeastern parts of the United States, as they compact the snow and furnish admirable roads for vehicles on runners. This is not satisfactory with the increase of motor traffic and cannot be considered as an actual method of removing the snow, as it is only reduced in bulk.

*Melting* has been advocated by many people, and some very efficient machines have been developed for this work, but





A CHAMPION SNOW-PLOW ATTACHED TO A GMC TRUCK CLEARING SNOW FROM BROAD STREET, KENNETT SQUARE, PA.

they do not seem to be adequate for handling large quantities of snow which must be removed quickly in times of heavy snowfall. For example, a 12-inch snowfall in New York City would produce 3,000,000 tons of snow requiring disposal, according to estimates of street department officials. If only one-third of this needed to be melted, more than 10,000 tons of coal would be required to melt 1,000,000 tons of snow. The transportation of a sufficient quantity of coal, gas or wood presents a problem prohibitive, even if the cost were not excessive, and inasmuch as most of the melting work would be carried on in freezing weather, the run-off would quite likely freeze in the gutters and drains before it reached the sewer, thereby producing an additional removal problem much more difficult of solution.

*Hand loading of trucks or wagons* is used by many cities, but is a costly method of removing snow from the entire roadway because of the failing of the type of laborer that can be secured for this kind of work. In conjunction with mechanical equipment, such as V-plows, straight blade plows and rotary snow-brooms, mounted on trucks or tractors, this method of loading is useful,

as it does remove the snow from the highway, but it is expensive.

High side-boards can be fitted to the ordinary 5-ton motor truck so that it can carry 10 or 12 cubic yards of snow in one load. These trucks may also be equipped with the pusher plows described below and are invaluable for making the first path along a street and keeping it clear. The truck illustrated is typical of those used in New York City. While purchased primarily for the removal of garbage, ashes and refuse, these 5-ton White power dumping trucks are always available for snow removal and are loaded both by hand and by various mechanical devices.

In Gardiner, Mass., according to Fred W. Proctor, Superintendent of Streets, motor trucks are used to open up the center of the city, covering in all about 15 to 20 miles, while a 10-ton Holt tractor is used to open up about 50 miles of road for automobile traffic. After the tractor has opened the road, the trucks can take care of light snow very effectively, although they are not able to open the road where the tractor has not traveled. It is necessary in using motor trucks with blade plows to open up streets to carry two or three tons of pig iron, gravel or other heavy material, to give the

trucks the necessary traction. B. I. Miller, Town Manager, West Hartford, Conn., recommends the use of chains with twice as many cross chains as usually come with ordinary motor truck equipment, in order to provide the necessary traction.

In the disposal of snow which has been loaded onto motor trucks care should be taken to minimize the haul. In many cities the snow is dumped into the nearest trunk sewer, which readily transports it away from the city. Communities that are located on rivers or on lake fronts can well dump from docks into the water. Other communities dump into deep ravines or from bridges. In many instances New York City uses its trucks equipped with straight blade plows to push snow close to the sewer man-hole, into which it is shoveled or pushed by hand labor.

*Snow plows* are of two general types—the pusher or straight blade plow, and the V or locomotive type plow. Characteristic of the first type are the Baker and Champion plows, both of which are very generally used in many cities, attached either to the front of 5-ton motor trucks or to various types of tractors. The Champion V-type snow-plow, the Eureka snow-plow

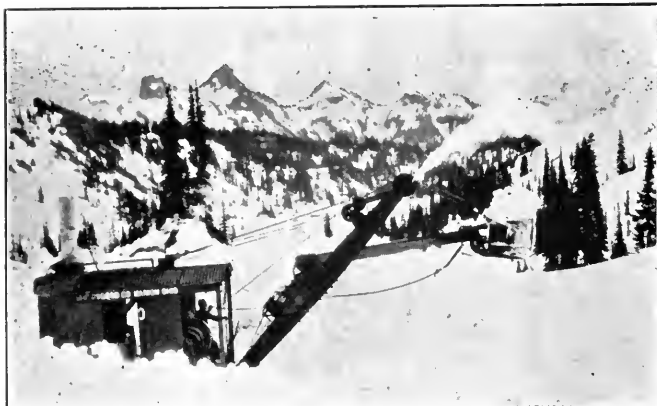
and the Sargent plow are the three leading plows of the V or locomotive type. Each is of steel construction and well adapted for tractor work. The two latter plows have been used successfully by state highway departments and cities where the snow is particularly heavy, for breaking through large drifts. A third type of plow, which has not reached commercial production, is the rotary snow-plow, an adaptation of the railroad rotary snow-plow commonly used in the Rocky Mountains. The South Park Commissioners, Chicago, Ill., have developed a plow of this type which has been used very successfully, and some Canadian cities are using them both for the removal of snow from streets and for clearing sidewalks. The plow developed by the South Park Commission of Chicago may be used to throw the snow across the sidewalks and onto the lawns along the roads or may be provided with a baffle which checks the flight of the snow and causes it to drop into a motor truck which runs alongside the plow. Plows of this type are almost always mounted on tractors.

*The rotary snow-broom* is a development of the very efficient rotary sweeper used quite generally by street railways for re-



#### THE VALUE OF MODERN TRACTOR EQUIPMENT FOR SNOW REMOVAL

1. A 6-60 Monarch tractor with 10-foot snow-plow. 2. A model C machine pulling a heavy loaded truck out of a drift. 3. The tractor that crawled from Watertown, Wis., to New Orleans, La., in the summer of 1922, cleaning up the road in the vicinity of Watertown, Wis., during the heavy snows of the winter of February, 1923. 4. Typical path of tractor equipped with snow-plow, showing snow piled at roadside



OSGOOD SHOVEL OPENING UP ROADWAY IN RAINIER NATIONAL PARK

moving snow from tracks. It has one advantage over pusher plows, in that it rolls the snow rather than packing it and making it too dense a mass for the truck or tractor to push. The rotary snow-broom as made for city use is operated by a motor separate from the truck on which it is mounted, thus making the operation of the broom independent of the speed at which the truck is traveling.

*Tractors*, originally considered as farm machinery and then used extensively on road construction, grading and maintenance, have entered the snow removal field within the last three or four years, and are now considered essential by practically all cities having any snow-removal problems. While the investment is heavy, most street cleaning engineers and highway department officials claim that it is an investment worth while even if the tractor is not taken out of storage except to fight snow. However, practically every community owning a tractor uses it for some type of work the year round.

In addition to the specific reports of the work of tractors and other snow-removal machinery given below from various cities, records should be made of the valuable work which has been done by 5- and 10-ton tractors in various cities. According to E. D. Bevitt, Secretary, Chamber of Commerce, Rome, N. Y., a 5-ton Holt tractor reached Utica, N. Y., on a Tuesday morning early in January, 1923, was equipped with a plow and reached Camden, 36 miles away, at 10 o'clock Wednesday morning, having bucked 25½ inches of snow as it

went over the roads.

F. L. Furbush, Chairman, Board of Selectmen, Westford, Mass., states that their 5-ton tractor has been used on several kinds of work in addition to snow removal and has been found to take the place of about 8 horses and requires fewer men to operate it.

Clyde H. Smith, Board of Selectmen, Skowhegan, Maine, reports that their tractor was paid for from the snow and highway appropriations during the

year in which it was bought, without having to raise any additional money for that purpose. Aside from making a big saving and eliminating the use of horses altogether for snow work, they have been able to open up the highways to the traveling public more promptly than ever before.

In Westmount, Canada, where they use a tractor to push a snow-plow to keep the streets open during the winter for automobile traffic, P. E. Jarman, City Engineer, says they are unable to compare the cost of this work with previous methods, as they never made any attempt to keep their streets open for automobile traffic before the tractor was purchased. A large number of the streets of Westmount are on extremely steep grades, and the tractor has always been able to plow up or down any of the streets after any of the storms they have had in recent years.

*Steam shovels* and gasoline shovels have been used in a number of communities as emergency apparatus for the removal of snow, particularly when equipped with extra-sized buckets, enabling them to handle the snow with considerable facility. In Detroit, a Universal crane equipped with an Owen snow-bucket made a remarkable record for the removal of high piles of snow from the center of the city, handling about 1,200 cubic yards in 12 hours from snow-pile to truck.

In May, 1923, the road from Narada Falls into Paradise Valley near Mount Rainier, Wash., was blocked by snow. An Osgood ¾-yard shovel on continuous treads was used to cut through 7 feet of snow,

opening it for traffic earlier in the year than usual. A somewhat similar occurrence was the opening of the Cascade Passes, particularly Snoqualmie Pass, about 6 miles in length, also in the state of Washington. The Washington Highway Department signed a contract with Rumsey & Jordan to keep the 6 miles of this pass open. A Type B Erie shovel with a reinforced 4-yard dipper and crawler tread was used.

The snow loader is a development of the wagon loader used for handling gravel, sand and other similar bulk material. Its development as a snow-handling machine has come quite recently and has been very successful. A Barber-Greene machine of this type made a record of handling 2,000 cubic yards of snow in ten hours in Albany, N. Y. The driving unit of this outfit is a regular tank-like crawler on which is mounted a belt conveyor with high cleats. This conveyor, operated by a Buda truck type gasoline engine, carries the snow up to the truck. A truck can usually be loaded in about 2 minutes instead of waiting 20 minutes to half an hour, as is usually the case when it is loaded by hand shovelers. By keeping many trucks going at their maximum speed and reducing their loading time to a minimum by handling snow at the rate of 200 cubic yards per hour, it is

possible to prevent a tie-up of traffic after the snow has been removed from the center of the roadway with other types of equipment.

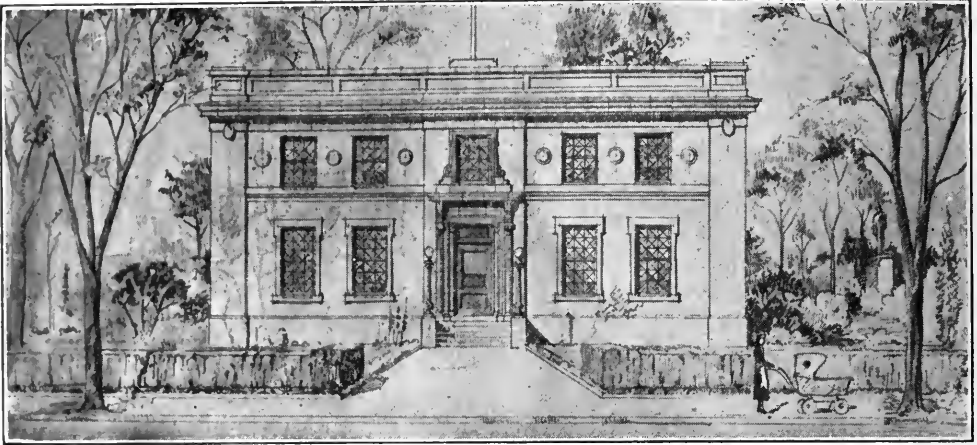
### Organization

The essential point in an organization for snow removal is a prearranged schedule worked out in the summer and fall so that when the call is sent out at the time of the first snow-storm, every man will know where to report with his equipment and just what to do. Some cities start work as soon as there is one inch of snow, while others wait until the storm is finished. It is better to start pushing the snow to the side of the road as soon as about one inch has accumulated, because in this way lighter equipment which can operate more rapidly can satisfactorily take care of the work. In rural communities, particularly in cuts where drifts are bound to occur, it is necessary to keep heavy tractor and plow equipment moving throughout the storm to prevent the complete blocking of the road by deep drifts.

EDITORIAL NOTE.—A statement of the costs of snow removal, as well as reports from various cities in the snow belt in the United States, will appear as the concluding portion of this article in the November issue of THE AMERICAN CITY. Attention is called to pages 377 and 378 of this issue, where further reports on snow removal from Providence, R. I., and West Hartford, Conn., will be found under the titles "Clean Streets Help Winter Traffic in Providence, R. I." and "Snow Removal in a Small City."



A BARBER-GREENE SNOW LOADER AT WORK IN MILWAUKEE, WIS.



CENTRAL FIRE ALARM OFFICE, UNDER CONSTRUCTION IN MONROE PARK, RICHMOND, VA.

# Richmond's Fire Department and Fire Alarm System

By Colonel William M. Myers and William H. Joynes

Director of Public Safety, and Chief Engineer, Fire Department, Respectively  
Richmond, Virginia

**I**N Richmond the first record of an organization for fire protection dates from September, 1784, when an enactment was passed by the Assembly "to prevent the building and repairing of wooden chimneys in the town of Richmond." Richmond had been incorporated as a municipality in 1782. By 1789 the houses had increased to 300 and the inhabitants to 2,000, although there had been a destructive fire on January 8, 1787, which consumed "between 40 and 50 dwellings and stores, with Byrd's warehouse, containing 70 hogsheads of tobacco."

The first organized fire-fighting brigade was instituted in April, 1816, under the name of The Richmond Fire Society, for the purpose of rendering mutual aid in the hour of peril, and to extend the influence of effective friendship. This fire company was limited to 36 members. The only paid official was the Secretary, who received \$15 per year, and was subject to numerous fines that are said to have amounted to ten times

the salary every year. A member was required to provide himself at his own cost with two buckets, two bags, and a bed-socket key. Members were fined \$2 for each alarm they missed, and many other fines and penalties added rapidly to the funds of the Society. In the event of a fire the owner of the premises directed operations;

in his absence the President of the Society had control. Dues were \$4 per quarter.

In 1819 another fire company was organized, and so on as the city grew. In this year, it is believed, hand fire engines were first installed; though we find one authority that states there were hand fire engines used

in Richmond in 1812, and intimates that they had been used some years previous to that date.

In 1855 the Richmond Fire Department was made an independent volunteer department, and was then organized with John J. Fry as Chief Engineer. The companies were composed of young men between the

Richmond, Virginia, is the Convention City for the International Association of Fire Engineers, October 23-26 —an occasion which makes this article of special timeliness.



HEADQUARTERS OF THE FIRE DEPARTMENT, RICHMOND, VA.

ages of 16 and 21. Rivalry between the companies was so intense as sometimes to impede the effective usefulness of the department.

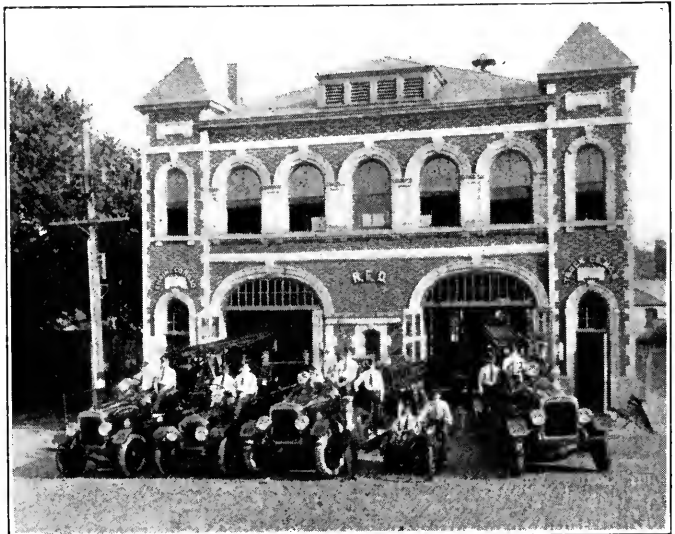
The first steam fire engine used in Richmond was introduced in 1860. It was built in Richmond by Ettinger & Edmunds. Alarms of fire were sounded by a large centrally located bell, hung in the old Bell Tower, which is still standing and is one of the old landmarks of historic interest in Capitol Square.

Directly after the Civil War, under the military official of reconstruction days, Captain Frank M. Mullen acted as Chief Engineer. The next Chief Engineer was William Charters, who lost his life in the disaster at the State Capitol, April 27, 1870. He was succeeded by George A. Ainslie, the father of our present Mayor, George Ainslie. The Chief Engineers serving since that period

are G. Watt Taylor, Arthur L. Fuqua, William G. Puller, George C. Shaw and William H. Joynes.

In 1911 the first motor fire engine was installed in the Richmond Fire Department. Further installations were made in 1912 and subsequent years.

In 1914 the city of Richmond annexed



HEADQUARTERS OF ENGINE COMPANY NO. 13 AND TRUCK COMPANY NO. 5, RICHMOND, VA.



much new territory embracing the suburbs of Ginter Park, Barton Heights and Highland Park. Each of these suburban towns had its own fire department, and Richmond took these over and at once installed paid companies. Ginter Park had a fairly well-equipped house and a motor engine. The other two had practically nothing in buildings or apparatus, but all are now as well equipped as any in Richmond, and the buildings are the most modern bungalow type. In this year, for the first time, all members of the Department were full paid or stationed.

the country. New modern engine-houses have been erected, replacing old and poorly located buildings, especially in the suburban sections; every horse has been displaced and every company is equipped with modern motor apparatus; and we now have ample reserve machines, a feature that was never known in Richmond before. The present department consists of seventeen engine companies, six hook and ladder truck companies, and one water-tower; also a well-equipped machine shop, wrecking and service trucks and officers' automobiles.

In 1921 the Fire Department was placed



NORTHSIDE FIRE STATION, RICHMOND, VA.

In 1919 the form of city government was changed and the Fire and Fire Alarm Departments were placed under the Director of Public Safety. When this change in government took place, on January 1, 1919, the Fire Department consisted of 208 officers and men, all working 24 hours per day with only one day off in every six. The annual pay-roll was \$314,000. Only six companies were equipped with motor fire engines, and three hook and ladder truck companies were provided with motor tractors. The Fire Alarm Department was antiquated and occupied inadequate quarters.

During the last four years, the Department, under the present Director of Public Safety, has made more improvements than in the entire previous history of the city, and to-day it is considered one of the best in

on a two-platoon system, and a substantial increase in the pay of the men was also obtained, thus making the living conditions of the firemen better than the men had ever hoped to realize. The present organization is composed of 322 officers and men, working 10 and 14 hours per day, shifts changing every seven days.

Another important improvement is the new fire-proof building for the Fire Alarm Department, now nearing completion in Monroe Park. On the first floor of the building there will be small offices and an apparatus room. In the basement will be found battery room, generator room, heating plant and shop. There is now in course of installation the most modern type of central office for fire alarm and police signaling and the necessary apparatus for the twenty-one engine-houses.



# The Earth Roads of Eastern Long Island, New York

Use of Asphaltic Oil in Construction and Maintenance Produces Remarkable Wearing Surface

By Frank Downs

Superintendent of Highways, Town of Southampton, L. I., N. Y.

SINCE the automobile has found its way onto Long Island, there has been a decided change in the interest shown in the maintenance and building of these roads. We have sand-clay roads that look like sheet asphalt; and what is more, we have built them ourselves. We are located in a rich truck-farming district and, at the same time, cater to the summer vacationist. Our roads receive heavy traffic about 24 hours of the day. Of course our heavy traf-

ic is best that both the sand and the clay contain considerable moisture during this mixing process, in order that a proper bond may be established. The town does not own a steam roller, so after mixing by harrow, the scrapers grade the road to the desired shape, and then traffic is allowed to compact the mass. During the construction period the drags are kept moving back and forth along the road until a smooth, even surface is obtained. A road such as this will carry



MONTAUK HIGHWAY, SOUTHAMPTON, L. I., N. Y., A SANDY-CLAY ROAD TREATED WITH TEXACO ROAD OIL

fic does not approach that of a big city, but we do average between two and three thousand vehicles a day.

Because of the scarcity of rock we have had to adapt our methods of construction to local materials. Many of our roads run on beach sand or through sand dunes. In order to build a stable road-bed on such a foundation, it was necessary to add a loam binder to this sand.

## Method of Construction

First of all, we use road graders to bring the subgrade to the proper alignment. Then we spread a layer of clay over the road and work it in with disc harrows. It

considerable traffic, but the up-keep is heavy.

We find that by using Texaco No. 55 asphaltic road oil at the rate of about one-third gallon per square yard, followed by a light coat of sand, in about ten days we have a very good road. If possible, during the first year an additional application of one-third gallon is made early in the fall. Unless the winter is exceptionally severe, the roads stand up perfectly. Bear in mind that we keep the scrapers working these roads throughout the entire year.

Some sections of the island have more gravel than sand. This is due to the fact that we are on a terminal moraine of a

glacier. We have developed a type of construction in order to make use of this aggregate as found in nature. The community has not deemed it necessary to build a screening plant, so we haul direct from the gravel-pit to the road. In most instances there is enough clay mixed with the gravel to act as binder, but when necessary we add more and work it in similar to our sand-clay mixture. When thoroughly compacted, the asphalt road oil is applied with a distributor, and fine gravel or coarse sand is used for a covering. In case large stones happen to get on the road with this covering, they are removed when the road is dragged.

On other places we have a sandy loam. This contains too much loam to make a good wearing surface. We use either sand or gravel, depending upon whatever material is most convenient. The same grade of asphaltic road oil is used on this type of construction, and the results have been highly satisfactory.

#### Maintenance

Construction is the least trouble; but, unlike on hard surface roads, maintenance, while not so expensive, is the feature that has made our roads what they are to-day. Until the surface is thoroughly compacted, we have our patrol men drag the roads continuously with light hones and wooden drags. We never allow the crown of the road to get too high, merely keeping it high enough to shed water readily. In

case pot-holes develop—and they will, no matter how carefully the road is patrolled—an application of the road oil and a covering of sand is all that is needed. If the holes are too deep, a mastic is made of oil and sand and the rut filled with this mixture.

It has come to my observation that in several instances, after five or six years of asphaltic oil treatment, under heavy traffic, the mat on the road-bed becomes wavy. Numerous methods have been tried to overcome this defect. The best is to scarify the road, harrow with disc and spring-tooth harrows until the material is finely broken, and allow traffic to compact it again. The patrol keeps all ruts filled, and in a short time our road is ready for an oil treatment. We have never used more than a third of a gallon to the square yard, and in many instances we use less. Because of the evaporation of the volatile matter, we have in less than two weeks a road that is a mixture of sand and asphalt. Thus we have built layer upon layer of sand asphalt road, and now we have many miles of these roads that look and wear like sheet asphalt. It has taken years to develop this high type of sand asphalt road, but many who drive over them state that they prefer this kind of road to any other. Since the cost of maintenance, counting both material and labor, averages only about \$350 per mile per year, we actually save more than the interest on bonds we would have to issue to build a road of the hard-surface type.

### Dynamite in the Anti-Mosquito War

**D**YNAMITE is one of the latest agents to be employed extensively in the war against mosquitoes. It has been used repeatedly by experts of the United States Health Service, and also by many communities in the Southern States in their municipal mosquito-control activities. The explosive is used to blast ditches through mosquito-infested swamps and lowlands in order to drain out the breeding-places of the pests, and the control of the explosive at the present time is such that it is possible to blow a ditch of any desired depth or width.

Engineers have found dynamite especially valuable for ditching under adverse conditions where there were trees, stumps, heavy bushes or other obstructions in the right of way. Un-

der ordinary conditions, with hand labor or with dredges, the right of way would have to be cleared before the actual operation of ditch-digging began, but with dynamite all the obstructions are blown out together with the earth. In many places where there is a shortage of hand labor, or costs of labor are high, dynamite has proved to be not only the most efficient, but the most economical, agent, the costs of ditching in many cases having been reduced from 25 to 50 per cent.

From the reports now being made on the use of dynamite as an anti-mosquito agent, it seems entirely possible that proper drainage can be so widely carried on as to bring the pest ultimately under complete control.

# City Zoning of Street Lighting

Street-Lighting Improvements Should Be Carried Out under Comprehensive Programs Coordinated with City Zoning Plans

By Charles J. Stahl

**I**N designing ornamental street-lighting installations the most important consideration is to build substantially to obtain efficient illumination at low operating and maintenance costs. The cost of possessing a street-lighting installation is seldom greater than its cost of operation over a two-year period. Most installations last from ten to fifteen years, so it is plain that a little saved or a little more spent on the original installation becomes an insignificant consideration when compared with the importance of wise planning from the standpoint of maintenance and operation costs.

In past years the usual practise has been to confine street-lighting improvements to limited sections. Just as city planning has until recently been almost wholly confined to scattering about the city a few beauty-spots such as civic centers, parks and playgrounds, so has street lighting been scattered through the agency of localized improvements carried out as private developments, or in the form of improvement districts, and nearly always aimed to boom a restricted area to commercial leadership through the establishment of White Ways. The work of so-called improvement districts

may be made valuable if regulated under a general improvement plan, but without centralized leadership the result is haphazard patchwork. There are several causes for the spotted development in street lighting. One is the failure of the public in the past to realize and appreciate the importance of good street lighting to the community.

The average street lighting throughout the United States is more or less subject to the following criticisms, given approximately in order of relative importance:

1. Inadequate illumination
2. Miscellaneous growth without a definite relationship to a comprehensive city plan
3. Inconsistent transitions and gaps in passing from one section to another
4. A lack of standardization
5. A lack in classifying streets, and no unity of treatment for streets of the same classifications
6. Too many unsightly or disfigured streets because of insufficient attention to architectural grace and ornamentation
7. Too much temporary construction instead of building for flexible permanence
8. Too little correlated, intelligent effort, research and talent applied



NIGHT VIEW IN LIMA, OHIO, WHERE A COMPREHENSIVE STREET-LIGHTING PLAN HAS BEEN CARRIED OUT UNDER CAREFUL MANAGEMENT AND TECHNICAL TALENT

Without taking time to detail the foregoing negative considerations, it is better to advance to the positive or constructive side of the question by establishing a definite set of rules here offered as a guide to the correct procedure in the design of ornamental street-lighting installations:

1. The justifiable expenditure for street lighting (construction plus operation and maintenance) may be graded according to traffic density.
2. Except in the rare case of uniformly loaded through-arteries, intensities of illumination on street of uniform character may be graduated as traffic streams split and thin out.
3. On purely residential side streets carrying little traffic except that originating from abutting residences, intensities and types of lighting may be chosen primarily from the standpoint of crime prevention and ornamentation.
4. On streets carrying slow-moving, heavy traffic such as trucking and freight stations, moderate intensities of illumination are acceptable, but not by means of unsightly overhead construction.
5. On the streets having little traffic and low property values, moderate intensities of illumination must nevertheless be maintained for crime prevention, and unsightly overhead construction should be avoided.
6. Statistics on the increasing popularity of good lighting and the decreasing cost of electric power show a definite trend upon which may be based fairly precise allowance to provide capacity and flexibility for future improvement and intensification.
7. The practise of outing a portion of the lights at about midnight is hazardous, complicated and seldom justified except on streets where very high values of illumination exist and where traffic is practically nil during certain hours.
8. The so-called "moonlight schedule" is obsolete and should be given no consideration.
9. All street-lighting design and construction can and should be developed on a scientific basis correlated with the city zoning plan dealing with the future of unimproved areas as well as the immediate requirements.
10. It is logical to have a somewhat higher illumination at intersections than at midway points.

The construction of the underground portion of an ornamental street lighting system may often be timed to coincide with repairs or reconstruction in paving, sewers or

water and gas mains. One can appreciate what the results would be if an office building were to be constructed by employing workmen of the different crafts and permitting each to proceed according to his own ideas, yet this is in a large measure the procedure followed in the building of our cities. Most communities have plans, but too many lack a comprehensive plan to associate and correlate in their relative importance the individual plans of the different municipal departments, which usually follow a fragmentary development based largely on guesswork instead of on a scientifically derived analysis and forecast.

Putting into effect the practise of designing street-lighting systems along with zoning or expansion plans permits standardization, simplified supervision, reduced maintenance costs, and the most efficient arrangement for transmitting energy to centers of distribution. The longer we delay in working out a comprehensive, foresighted and far-sighted street-lighting plan comprising the entire area within the city limits, and such areas as are likely to be annexed, the greater will be the loss in tearing down and reconstructing. Without such a plan, piecemeal plans are sure to be uncertain and unsatisfactory.

In order to discuss the subject more in detail, suppose we have before us the plat of a city of more than 100,000 population; say Indianapolis, where a short time ago a zoning ordinance was passed by the Council, crowning a year's work of the City Planning Commission. On the plat it is easy to outline the intensified business section. We can call it Lighting Zone "A" and proceed to make up Zone "A" specifications. These specifications need not call for an immediate remodeling of the lighting. Although it may be found inadequate according to the advanced standards of today, there is another consideration of equal importance, and that is that in our study and planning we must comprehend what the requirements are likely to be ten years hence.

Usually more than half of the cost of ornamental street lighting is in the underground construction, and it is this portion of the work that should be made flexible and adapted to fit future developments and higher intensities without extensive reconstruction. Zone "A" specifications should,

of course, call for the best of ornamental street-lighting equipment. Traffic, both vehicular and pedestrian, is dense, which means that property has a high valuation, in comparison with which the street-lighting cost becomes an insignificant figure.

Number one of the foregoing rules states that the justifiable expenditure for street lighting may be graded according to the traffic density. One's first impression may be that it should be graded according to property values, and there is, in fact, no reason why the property instead of the traffic consideration may not be applied, for property values are created by, and are directly proportional to, the traffic.

In continuing our study of the plat we find certain main arteries of traffic. They may run east and west, and north and south, or they may be radial, or both. The point is that they are the main members of the framework upon which the city is built and is to continue its growth. In most cities heavy trucking is allowed on these arteries, but others are regarded more as passenger express routes with right of way over the contributing cross streets. At any rate, a liberal quantity and a good quality of illumination should be applied to expedite and safeguard this traffic, in which the possibilities for misjudgment must be eliminated as far as possible. The same considerations may be extended to the rolling of the fire department's equipment, police supervision, detection and pursuit. Units should be mounted fairly high and glare reduced to the minimum. The selection of these streets falling within the area covered by lighting specifications "A" are, of course, provided for, and thenceforth specification "B" applies.

A description of the particular characteristics of the various types of street-lighting equipment now available would become too complicated, and possibly tiresome. Cor-

rect selection of equipment can readily be made after a comprehensive plan is established, so it is not necessary to consider details of the individual zoning specifications, but simply to outline the principal results that each is to produce.

### Predicting Future Requirements

In predicting the requirements of the future we shall perhaps never be able to reach perfection. We cannot expect to forecast one hundred per cent correct, and some replacing problems are bound to arise, but advance planning has the advantage of reducing them to the minimum. The intensive business section will expand, and parts of B will merge into the A district, there-

fore provision must be made so that parts or all of Zone B lighting may with a minimum of reconstruction be converted into Zone A lighting, and this is the very condition that makes a comprehensive plan beneficial and indispensable.

Pliancy is obtained by making the necessary provisions in forming the underground network of electrical circuits so that it be-

comes possible to make substitutions in the lighting units. Then as units in Zone B are replaced, they are not lost but become available for growth in the extremities of that zone; in other words, it becomes possible to transplant without disturbing the roots. The most essential provision is an adequate system of underground conductors forming a network in which, as in the case of the streets, there must be high-tension main arteries, intersections, and low-tension branches, in order that the electrical energy, like the traffic, may circulate expeditiously.

Few civic administrations realize the full gravity of the problems of distribution which often confront the management of a central station serving a city without definite community plans as an aid in forecasting the trend of developments and future

City planning offers an opportunity for many city officials to perform a service of inestimable value to their community, and although a full measure of the benefits does not always become apparent during the life of the administration initiating the plan, these officials at least become known as men of vision, which influences the electorate to maintain them in office, not only because of their qualifications, but in order that they may carry on with their program. Sometimes a plan proves to be only an ideal. But a people without ideals degenerates, while one with practical ideals is already upon the road to attain them.

requirements for the lighting of the city.

Returning to the plat, we could outline several different districts each requiring different types of equipment as far as the portion above the ground is concerned. A third specification would be necessary for secondary business streets, a fourth for the manufacturing and wholesaling districts, a fifth for parks, playgrounds, civic centers, boulevards and other areas for recreational purposes. A sixth becomes necessary under some of the most modern city plans contemplating the elimination of grade crossings where streets intersect boulevards. In such an arrangement either the boulevard or the cross street becomes for a short distance a viaduct or a subway, both of which require special treatment in order to obtain effective illumination.

A seventh specification is required for alleys in business sections, and an eighth for alleys in outlying sections. All of these specifications, however, can have many features in common. As a result, the variety of items to be carried in stock are substantially reduced and prompt repairs are made possible with a minimum of "standby" material in the warehouse, and a corresponding reduction in the inactive investment.

Aerial traffic, including night flying, is no longer to be disregarded, so another specification covering the lighting of landing fields, depots and hangars may be required in the near future. Some cities also have use for a similar specification for the flood lighting of municipal bathing-beaches. So, under a set of from twelve to fourteen standardized types of lighting, all having numerous features in common, the varied lighting requirements of a large city can be economically provided for. It is interesting to contrast the results of such simplification with the conditions now existing in many American cities.

For example, in a western city of 250,000 population there are forty-seven separate and distinct types of lighting, with a complete lack of interchangeability and with no logical associations or relationships. A better effect could be obtained with no more than ten types properly applied, and great economy in supervision, maintenance and operating costs could be brought about.

### **The Effect of Regional Planning**

Fortunately, in some localities city planning is being broadened into regional plan-

ning; in other words, cooperative planning between communities is being advocated and in a few localities is already being practised. From the illuminating engineer's standpoint the idea should be encouraged, for the lighting of interurban highways is already an important consideration under the good-roads movement. Tourists do not select a route because the streets of a certain city on that route are well paved and lighted; their choice is based on the average character of the route throughout. In this and many other ways the success of almost every city depends in some measure upon the activities of neighboring cities.

The immense volume of high-speed traffic brought about by the extensive use of automobiles has caused an enormous increase in traffic accidents. A careful study based on accident statistics from thirty-two cities shows that 17.8 per cent of all night-traffic accidents are due to inadequate illumination, which, evaluated, represents an annual property loss of at least \$54,000,000, in addition to misery, loss of life, care of dependents and those permanently disabled. On the other hand, according to census reports the total expenditure for street lighting in the United States does not exceed \$50,000,000 per year.

Street lighting is a great benefit to automobile drivers, whose vision after dark depends upon the fairly constant and uniform illumination from the street lights and the spasmodic violent influence of approaching automobile headlights. Although the average street illumination throughout the country is inadequate, the greatest danger, excepting grade crossings, is in glaring automobile headlights, and with the continual growth in automobile traffic it is becoming evident that some solution of the headlight problem must be brought about. There are at least two possible solutions, namely:

1. The establishment of one-way streets and interurban or trunk highways
2. The lighting of trunk highways so that with dimmed headlights cars may be operated with safety and in comfort at the customary cross-country speeds

Efficient highway lighting fixtures have been developed, and their use is being advocated by the leading manufacturers of street-lighting equipment, and is sponsored by the Illuminating Engineering Society after considerable study and experiment.

The cost of lighting a highway does not

exceed 5 per cent of the cost of duplicating the highway in order to provide for one-way traffic, so it is obvious that the second method is more economical than the first.

Many states have put into effect very definite regulations requiring the use of improved headlight lenses, governing their adjustment and various other details. Some have employed illuminating engineers and maintained a substantial force of traffic officers especially trained for competency in enforcing the headlight legislation, but the most conscientious and persistent supervision has met with very little and unstable success. The solution lies in applying sufficient illumination to our main highways so that drivers will not need their headlights except perhaps as markers to define the width of the car or the limits of the area to be avoided in passing, and on city streets to make the approach of automobiles readily apparent to the pedestrian.

So far, obsolescence has not been mentioned. It presents no serious difficulties except to cities possessing extensive arc lighting systems. Most Mazda lighting units are adaptable to whatever changes may take place in the design of lamps and glassware, so a further development in the

Mazda lamp will in all probability only necessitate corresponding adjustments already provided for in the construction of modern fixtures.

A scientifically derived, comprehensive and far-sighted street-lighting program correlated with a city zoning plan is not easily worked out. It calls for specialized talent in many lines of work, and in most cases city officials can profit by bringing into consultation the engineers found in the organizations of public utility companies whose success depends largely upon their ability to foresee future requirements and to be able to meet them with a minimum loss in reconstruction. This nation is growing an enormous number of gigantic cities and many of them have in the past developed in a haphazard manner. Our large industrials and other privately owned projects exemplify the economy of employing talented engineers and architects. The city is, of course, a more important project than any of its contributing industrials, yet there exists in most large industrials an array of engineering talent, and policies on research and development, that are rarely found in the entire personnel and program of the average city's administrative body.

## Railroad Shops Use More Water Than City

OVER 9,000,000 gallons of water are consumed every working day by the Altoona shops of the Pennsylvania Railroad. This is almost double the quantity used by the entire city of Altoona, with its population of 70,000 persons. The additions and extensions now under way at the shops have so increased the consumption of water in and about the shops that \$500,000 has been appropriated by the railroad for the construction of a large masonry dam in Tipton Valley, about ten miles east of Altoona. The new dam will be solid

masonry and concrete wall, about 400 feet long and 78 feet high. It will be 60 feet thick at the base, well bedded in solid rock. In excavating for the foundation, it is estimated that 18,000 cubic yards of earth and stone will be removed. The dam will create a lake 32 acres in extent, with a capacity of 250,000,000 gallons of water. Tipton Run, which the new dam will impound, is a pure mountain stream, very desirable for railroad purposes, as it is entirely free from substances which corrode boilers and damage metallic surfaces.

## Brick Paving Satisfactory in Cambridge, Mass.

FROM 1901 to 1905, Cambridge, Mass., laid about 25,000 square yards of vitrified brick pavement on a concrete base in a number of streets 40 to 50 feet wide and carrying a fairly heavy traffic, all greatly concentrated by street railway tracks.

The maintenance cost of these streets has been very small, and the pavements are

still in serviceable condition after an average of 20 years of service. Other streets have been paved since with brick, most of them still being in service. Where badly worn, some of these have been used as a base for a new bitulithic surface.

—Lewis N. Hastings, City Engineer, Cambridge, Mass., in the *Journal of the Boston Society of Civil Engineers*, Volume X, No. 5.



# The Battle of the Streets

A Summary of Tendencies, and Some Remedies

By J. Rowland Bibbins

Consulting Engineer, Washington, D. C.

IT seems high time for those concerned in the serious study of city and transportation development to make a new appraisal of present conditions and future possibilities; for the conflict of interest of those using the public streets has become a veritable battle for supremacy. "Traffic" has become a regional as well as a local problem, and future growth must be met more frankly and scientifically than in the past.

## Elements of the Problem

In general, the elements of the problem are as follows:

1. Transit service—capacity and routing
2. Street traffic control—vehicle and pedestrian
3. Rail and marine traffic—provision for special needs
4. Street and highway plan—capacity for present and future
5. Pedestrian movement
6. Relation to the broad city or district plan and the general public welfare; special needs of the office, wholesale, retail, warehouse and industrial districts; also the purchasing power of the city for public improvements as measured by its increasing revenues from taxation of private property

## Some Typical Conditions

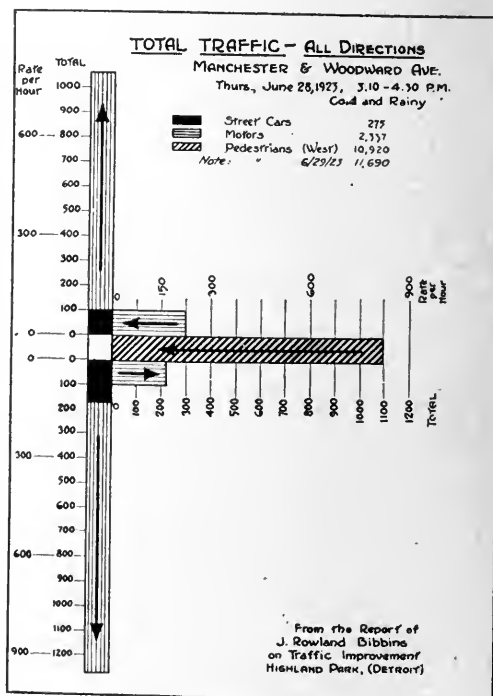
Chicago has attempted literally to serve an area of over 200 square miles by a central district eight blocks wide by twelve blocks long. But business has now burst through these fictitious boundaries, after facing an economic loss estimated by the City Plan Commission at \$60,000,000 per year from traffic impedance due alone to parking in a lineal street frontage of only 110,000 feet. A 30-minute day and no-parking rush hour traffic ordinance has improved conditions, but 300,000 cars in the Chicago district call for accommodations upon the public streets for business and pleasure.

Baltimore recently found in its business district 152,339 vehicle movements and only 21,036 street car movements, and that during the rush these vehicles handled only 11

per cent of the total passengers carried, while the street cars handled 89 per cent.

Detroit has developed a northerly sub-center of unusual size, Highland Park, but here, at the principal exit from the Ford Motor Works, a rush hour traffic is found averaging 18 seconds headway per street car, 2 seconds for vehicles, and from 0.1 to 0.2 seconds for pedestrians; i. e., about 200 street cars, 1,800 motors and 10,000 to 20,000 pedestrians per hour.

Montreal, at its three most important street crossings, finds 75 per cent more vehicles than street cars, but these carry only 7 per cent of the passengers carried by



## WHAT A SUB-CENTER MAY DEVELOP

Conditions in front of the country's largest single factory. A T-crossing on Detroit's main thoroughfare. Here, rush traffic approximates 200 street cars, 1,800 motors, and 10,000 to 20,000 pedestrians per hour, and with left-hand turns permitted. The pedestrian traffic shown by the scale should be multiplied by 10

cars. And during heavy winter snowfall, practically all traffic is confined to the car tracks for long periods. Motors have multiplied five times in six years and trucks nearly doubled in two years. There are only three main highway entrances to the city, one from the south; but over 80,000 United States automobiles enter Quebec province during the summer, mostly reaching Montreal. Yet Montreal has only one main traffic street with roadway as wide as 54 feet, necessary for free two-way traffic with street cars and parking; and this street is used for heavy freight traffic between east and west side railroads and industrial districts as well as for the street railway terminal trunk lines.

Los Angeles is striving to work out of its tangle of motor traffic, superimposed upon its street railway and heavy interurban train movement through the streets. It has been recently proposed seriously to exclude street cars entirely from the central business district, using a belt-line transfer instead.

A large proportion of the through interchange l.c.l. freight movement between Chicago railroad terminals is still handled through the city streets by trucks. In Cincinnati practically all l.c.l. interchange freight, formerly handled by trap cars, is now motored through the streets by the shortest route.

These are not far from typical conditions throughout the country in the larger cities. The two most serious tendencies have been the general resistance to any change or betterment except at the "other fellow's" expense, and the very general recourse of city authorities to sudden and drastic prohibition in one form or another in the use of the public streets.

### Growth and the Future

It is probable that by 1940 our population will approximate 130,000,000 people, of whom 70,000,000 or more will reside in the cities. Railroad freight tonnage is increasing proportionately as the cube of the population or nearly so; ton mileage is increasing much faster. Thus, terminal tonnage is a problem proportionate to the cube of urban population, at least for a time. Trucking tonnage will probably increase as fast; for, except that which moves car-load direct from origin to final destination, the entire rail tonnage must be carried over our streets

and highways one or more times, according to the number of fabrications.

The paradox of transit traffic increasing as the square of the population still continues in New York City, and in most cities it is at least following a geometric progression, rather than straight proportion. Motors are increasing far beyond the fourth power of the population, and it is found in some cases that the total movement each day in and out of the delivery district of a large city is equal to, or greater than, the number of car registrations for the entire city. Pedestrian traffic seems to be hopelessly crowded into the background.

On the other hand, fixed traffic facilities, such as streets, tracks and terminals, are only slowly increasing—hardly as fast as the population, if at all—while the traffic itself is increasing in geometric ratio to the population. Meanwhile, city authorities hesitate to undergo apparently expensive improvements, although clearly running the risk of vastly greater expense later, due to the rise in property values. And here is the one fortunate aspect. For the assessed value of property in our cities is increasing at about 1.7 power of the population, in some cases faster than the square. This growth is generally stable and a reasonably sure index, and should offer great encouragement to careful study and prompt action.

### Suggestions for Constructive Action

From these facts it is clear that the immediate and future problem is largely a terminal one. It has been greatly neglected in the past and left entirely in private or corporate hands or to the carriers themselves. Few cities have even gone so far as to develop by-pass traffic streets and highways,\* and in a recent 2,000-mile auto trip in the East the writer did not see a single sign at the entrance to a city reading "Heavy traffic detour this way."

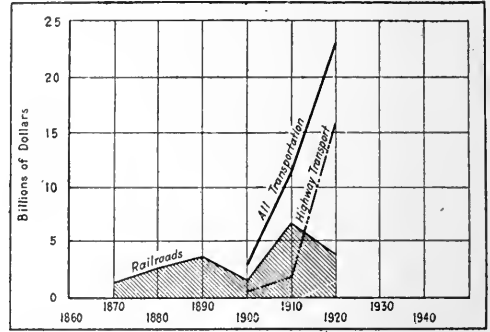
There are many avenues for constructive action, immediate and future, which ought to be based upon ascertainment of definite facts first. The general idea of decentralization is of course good, but even subcenters have to be planned in advance. Thus, the problem of Highland Park, Mich., is already as large as the central district

\* But Baltimore has developed its "Falls Way"; Chicago, 65 miles of freight tunnel and its two-level Michigan Boulevard (South Water Street Extension underway); New Orleans, its Belt Railroad; St. Louis, its plan for motor freight to off-track inland stations.

problem of a city of a million or more.

The thoroughfare plan is most important. We now know that the old decimal system of 40-, 50-, 60-, 80-foot widths has little merit as a measure of real traffic capacity. Sidewalks and obstructions must give way and arcading of highly developed narrow streets may often have to be resorted to, to widen the roadway and still give opportunity for full development of air-rights above. The constant extension of building heights is a ruinous civic policy. Some office buildings are now being built with automobile storage for their tenants in the basement.

The "twilight zone" surrounding the business districts of all large old cities offers an unusual opportunity for development of marginal long-time storage facilities for business cars; and in cities of rugged topography, hillside garages with entrances with from two or three levels can be built and operated at far less cost than the ramped buildings now being built. Limited parking must be adopted, but rigid prohibition is obviously the wrong method, at least until our citizens become rich enough to have their own chauffeurs. In every city many idle spaces can be developed, at least temporarily, for pay storage at moderate rates; and underground storage in large public areas, such as the ideal situation in



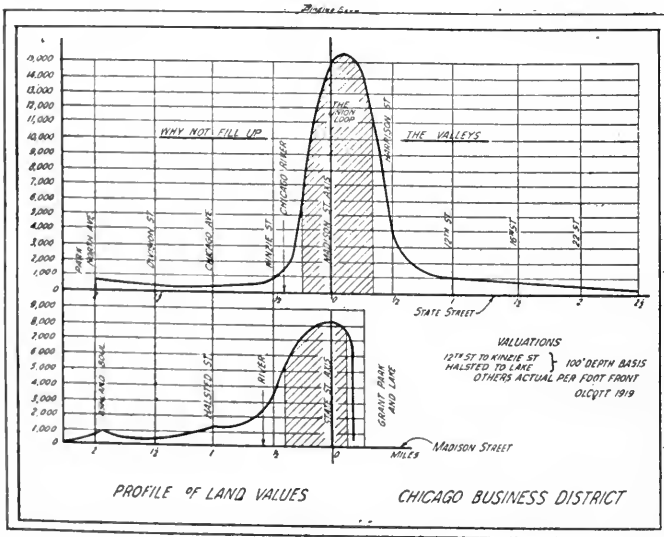
### WHERE THE NEW CAPITAL IN TRANSPORT IS GOING

Highways and motor transport cost the American people four times as much as railroads the last decade; only one-fourth as much as the previous decade. Shall it be used as competitor or terminal agent?

Grant Park, Chicago, remains to be developed.

With a reasonable accommodation of essential motor traffic, it will be found that the problem of street car movement will unravel itself through better operation, now almost impossible, and rapid transit. Singularly enough, the value of prepayment loading stations for street cars at large industries and other heavy transit points, for speeding up the line, has been too often neglected by both transit companies and industries. Electric railways still exist as our

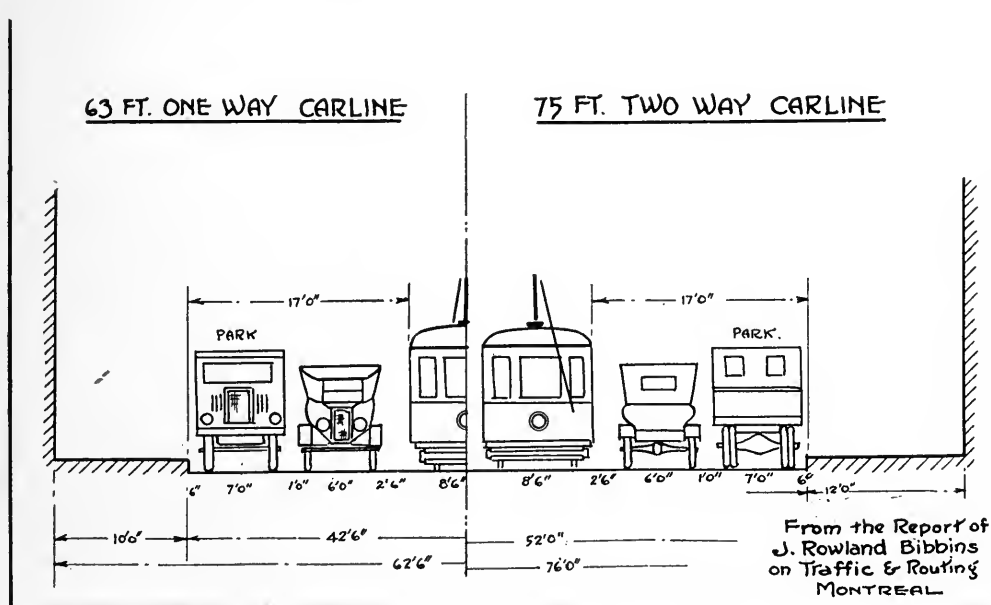
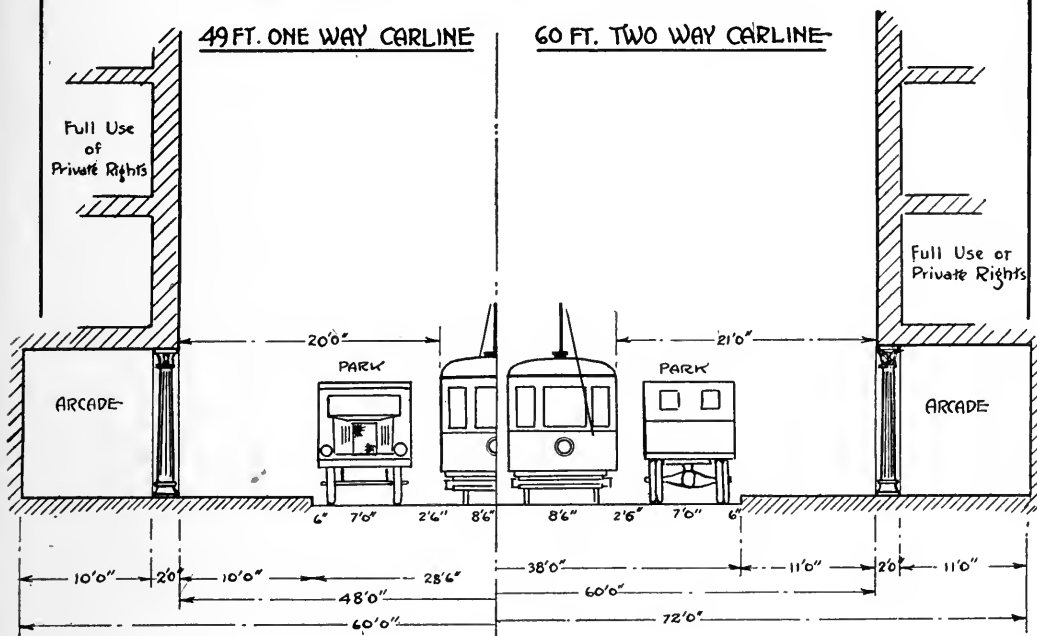
major hope of mass transportation, but they cannot function unless given the right of way which is proper under our democratic code of life—the greatest good of the greatest number. The fuller development of strategic railroad entrances, available in many of our large cities for combination railroad, rapid transit and motor ways, is a public resource of immense value to which immediate thought should be given; for this policy will save tremendous investment in otherwise duplicated facilities, or, conversely,



### LAND—THE HEART OF THE PROBLEM

Profile of land values along Chicago's business axes—the administrative center of a 200-square-mile city with fixed "loop" boundaries. The hump rises with building heights and city growth. Why not fill up the valleys?

## MINIMUM DESIGN FOR CARLINE BUSINESS STREETS SHOWING EFFECT OF ARCADING



### WHY NOT ARCADED STREETS?

Where 50-foot streets become 65-foot streets; and 60-foot streets 75-foot streets, with only the sacrifice of some ground floor area. Most ground-floor stores do business now by artificial light. Few older cities have business streets wider than 60 feet

provide more facilities for the same money.

Perhaps the greatest immediate need of the railroads is to apply a "suction-pump" to their terminals to get the freight away. In other words, off-rail movement is perhaps equal in importance to overland movement. In the aggregate, half of the total transport cost, origin to destination, is off-rail. The efficient organization of this great off-rail movement in our cities is a problem that has been almost wholly lost sight of, except in a very few cases.

To this end there must be brought about some reasonable form of general terminal unification—at least in operation, if not in ownership and control. Probably half of the investment in railroads to-day is in other than main-line track, namely, terminals, and the proportion of new capital therein is increasing and necessarily must continue to do so. Coupled with a real organization of off-rail motor movement, terminal unification offers perhaps the greatest opportunity of the future for increasing the efficiency and revenue-earning capacity of railroad investment. And in the face of the present astonishing growth of rail tonnage, some such plan may soon become imperative. Zoning of commercial districts, including terminal, port and harbor operations, has also become a definite need.

The reclamation of land values, especially in railroad terminals, surrounded as they are by highly developed areas, again offers future possibilities difficult to exaggerate, and one of the most important financial resources now available to the railroads. It is almost axiomatic that rise in land values must eventually force a recession of freight facilities (and possibly passenger facilities) through the agency of motors, just as in other normal real estate development. Store-door delivery will simply accelerate this rational process.

In these necessary great public improvements of the future, part-solutions are dangerous, as the various factors are so inter-related. In rational terminal evolution (used in the broader sense), rail, motor, trolley, barge and ship must each play their logical part. If a reasonable system, similar to our present local district assessment method, is worked out on a basis of true cost and benefit, with excess condemnation where it is obviously essential to insure correct development, the future growth of our cities will not prove so distressing a problem as in the past. However important other phases of city planning, transportation must be recognized as having a more definite place in the general perspective. It is not a detail; it is fundamental.

## First-Aid Instruction in Police Departments

THE practical value of the American Red Cross first-aid instruction course for members of the police force is demonstrated by official reports of the Milwaukee, Wis., Police Department, from which quotations have been published by *The Red Cross Courier* in its issue of September 1, 1923. Brief accounts are given of a number of actual rescues effected by the police of Milwaukee, in which Red Cross first-aid methods, taught

in the Police Training School of that city, were used. In a letter to Commodore W. E. Longfellow, Assistant Director of Life Saving, of the American Red Cross, Floyd C. McGuire, Supervisor of the Milwaukee Police Training School, writes: "We have saved thirty-eight lives to date, and are getting better and better."

All applicants for admission to the New Orleans police force must qualify in a Red Cross first-aid instruction course.

## Skidding a Minor Cause of Highway Accidents

A CAREFUL record of accidents kept within the state of California reveals that, compared to accidents from other causes, accidents caused by skidding constitute only 2.4 per cent. Thirty-one per cent of all accidents were due to reckless driving and speeding. The remaining 66.6 per cent were due to other causes, chief among which

were confusion, inexperienced handling, lost control, broken steering apparatus, no lights, dazzling headlights, intoxication, failure of brakes, traveling unknown road, children and other pedestrians stepping directly in front of machines, disregard of signals at crossings, attempts to cross ahead of trains, etc.

—Highways Information Service.

# The Proper Equipment for Water-Works Pumping-Stations

By Arthur L. Mullergren

Consulting Engineer, Kansas City, Mo.

**T**HE three principal factors to be considered in the design of a pumping-station are in the following sequence: First, reliability; second, adequacy; third, economy. Reliability can always be obtained by the selection of the best types of equipment known and by duplication of all parts throughout the installation. Adequacy can always be obtained by using liberal sizes of equipment and appurtenances.

The economy, however, is affected by the first two factors, in that unnecessarily expensive equipment might be selected for the particular installation and avoidable duplication made, as well as equipment installed that was too large for the particular requirements.

There is a happy medium that can be reached by properly proportioning and selecting the various equipment for each particular installation and that will give amply adequate and reliable service at an economically satisfactory annual over-all cost. Therefore, in the designing of a pumping-station, the three factors mentioned above should be carefully weighed in the determination of each piece of equipment that goes into the station.

Inasmuch as the over-all economy of a station depends upon delivering the required quantity of water at the required pressure with the least possible fuel and labor charges in addition to the fixed charges, it is important that careful consideration be given the various component parts of the station equipment so that the completed

station will give the results desired. In some instances it is impossible to secure a highly economical installation, because of the location of the plant and the space requirements. A water pumping-plant must always be located with regard to the available supply, regardless of the desirability of the location from an operating standpoint. The location of a plant generally has some effect upon the type of equipment selected, and

consequently each particular location requires careful consideration. When considering the reconstruction or rehabilitation of an existing plant, a greater over-all plant and system economy may be secured by selecting a different site. In some cases it is possible to have a choice of half a dozen different locations from a water-supply standpoint, and in such cases the determination of the site can be made

## Chief Considerations in Design

The objective in the designing of a pumping-plant is the selection and installation of such equipment as will give the most reliable and adequate service at the lowest possible cost, taking into consideration all fixed charges and operating costs. The modern pumping-station is similar to the electric power-station, in that both are called upon to deliver essential commodities continuously and adequately at a minimum of expense. The pumping-station is somewhat different, in that reliability of service is the prime requisite, as continuous service must be given at all times, even at a sacrifice of economy. However, economy never has to be greatly sacrificed in a well-designed station.

from a purely operating standpoint.

## Improvement in Pumping Machinery

There has been marked improvement of the design of pumping machinery and power-station equipment in the last few years. Until very recently, for very large pumping-stations, the vertical triple expansion fly-wheel pumping-engine has been pre-eminent from an economic and mechanical standpoint. This type of engine under favorable steam and water conditions has reached a duty exceeding 200 million foot-pounds per 1,000 pounds of steam. These engines have been very reliable and the

maintenance cost very low. However, they require very expensive buildings and foundations, and the investment is very high. The installation of such engines is prohibitive in the smaller plants, owing to the very high fixed charges. The annual fixed charges on this type of pumping-engine will exceed \$700 per million gallons daily capacity. With the very marked development made in steam turbines in the last few years and the improvements made in the design of the centrifugal pumps, the steam turbine-driven centrifugal pump has reached an over-all economy that will exceed the vertical triple expansion fly-wheel pumping-engine where favorable steam conditions can be obtained. There is no question now as to the reliability of the steam turbine, for the general electric power-stations use this type of prime mover exclusively and have used it for a sufficient time to thoroughly demonstrate its usefulness as a reliable and economical source of power. There is no question as to the reliability of the centrifugal pump, and the designers of these pumps have now increased their efficiency to a very high state, reaching as high as 86 per cent. One of the difficulties formerly encountered in the turbine-driven centrifugal pumping unit was the gearing used to reduce the pump speed to a satisfactory point. The double helical reduction gear now employed for this purpose has overcome this difficulty, as such gears have an efficiency of 98½ per cent and operate with very little noise and maintenance, and apparently have a life equal to the unit.

The steam turbine is admirably adapted to high steam pressures and high superheat, as well as a high vacuum. With the increasing tendency towards higher steam pressure and higher superheat, the turbine pumping unit will naturally benefit in economy to a greater extent than the reciprocating type of pumping-engine; consequently there will be an improvement in the duty of the turbine pumping unit as improvements in the boiler plants are made. Materials capable of withstanding a total steam temperature of 750 degrees Fahrenheit are commercially used in turbines, boilers and piping, and this temperature seems to be about the commercially practicable limit at present, although considerable research work is being undertaken to develop materials capable of withstanding much higher

temperatures. Probably the highest duty reached so far under an actual operating test by a turbine centrifugal pump was that of a 30-million-gallon centrifugal pumping-engine at the Mount Royal pumping-station, Baltimore, Md. The duty reached by this engine on test was 170 million foot-pounds per 1,000 pounds of steam, when delivering water at the rate of 45 million gallons per day at a pressure of 180 feet with a steam pressure of 172 pounds superheated 53 degrees Fahrenheit and a 28.9-inch vacuum. The city of Omaha, Nebr., has recently contracted for the installation of a 50-million-gallon-per-day, 280-foot-head steam turbine centrifugal pump, and the manufacturers have guaranteed a duty of 189 million foot-pounds per 1,000 pounds of steam based on 250 pounds steam pressure at 150 degrees Fahrenheit superheat and 70 degree cooling water. This duty is exclusive of the condensate pump and the hurling water pump for the hydraulic air ejector. These two pumps are direct-connected on one shaft to a 24-brake-horsepower steam turbine operating non-condensing. The duty included, however, all other auxiliary equipment used by the pump, condenser and turbine. The non-condensing steam turbine for driving the auxiliaries mentioned is used to secure a proper heat balance in the station. Consequently, the total station duty will not be affected and may possibly be improved.

### Boiler Plant Equipment

The large central electric power-stations have made great improvements in the over-all plant economy. This improved economy has been secured largely through the improvements in the boiler plant equipment. An over-all plant thermal efficiency of 18 per cent has been reached, and it is expected that 20 per cent will be reached shortly. The boiler plant has always been, and is yet, the least efficient part of the pumping-station or the central power-station, and power-plant engineers are making a great effort to improve the efficiency of this part of the plant. Larger boiler units are being installed, with higher steam pressures and higher superheat. Furthermore, the tendency is to operate the boilers at much higher ratings, which keeps down the investment and fixed charges, and the thermal efficiency of the boiler is not seriously affected. The central station engineers



have been endeavoring to secure as nearly as practicable a perfect heat balance is the station, which, of course, increases the over-all plant economy. This is attained by utilizing the greatest possible number of heat units of the fuel and returning the condensate to the boiler at the highest possible temperature. In a recent boiler installation

made in a central station, the furnace walls were lined with cast iron blocks surrounding steam tubes through which the boiler water circulated. It is expected that the additional heating surface furnished in this manner will give a much higher over-all boiler efficiency, due to the fact that more of the heat units of the fuel will be utilized. It is furthermore expected that the furnace maintenance expense will be reduced below that of the regular fire-brick lining, which is always a source of expense. The judicious use of economizers has also considerably increased the boiler plant efficiency.

Recent tests indicate that greater plant economy can be secured by bleeding the main turbine units at the lower stages for feed-water heating than by using small steam non-condensing auxiliaries for this purpose; in fact, better over-all results were obtained by bleeding a sufficient amount to secure the required feed-water temperature than by using economizers and steam-driven auxiliaries or house turbines. This bleeding also relieves the lower stages of congestion. Either electric-driven or water-wheel-driven auxiliaries can often be used to a

better advantage from an installation as well as an economic standpoint. In water-works stations the water-wheel-driven auxiliaries with hydraulic air ejectors, returning the cooling water to the suction of the main pumps, offer simplicity and economy. Only the very largest pumping-stations, however, would warrant a boiler plant in-

stallation similar to that used in the best type of central stations, but in many cases it would be possible to secure a greater over-all station economy by the use of central station methods and equipment adapted to the particular condition.

There are now on the market meters for the boiler room that will record fairly accurately the various operating conditions of the boiler plant, thus making it possible to check up any unusual loss occurring therein. A modern boiler room should contain all such meters as will enable the operating engineer to tell the condition of his combustion, water temperatures, and output, and any defects in his equipment. While we are at present getting

### What Is the Duty of Your Plant per Dollar of Annual Charges?

In the determination of the equipment for a pumping-station, there has been a tendency to select a very highly efficient pumping unit sometimes without regard to the adaptability of the unit for the conditions under which it will operate, and particularly without regard to economic consideration, and at the same time the boiler plant equipment and auxiliaries are selected with very little thought. The pumping-station should be considered as a unit, and all equipment entering into its construction should be carefully selected with regard to the adaptability and economy of the various parts with respect to each other and to the whole. Much publicity has been given at times to the very high thermal efficiency reached by some pumping units, and in some cases the over-all thermal efficiency of the plant has been commented upon. Our goal has apparently been to secure a high duty per B.T.U. If the efficiencies of some of these plants had been measured in duty per dollar of annual charges, they probably would not have made such a satisfactory showing. After all, the duty per dollar of annual charges is the true measure of efficiency of the pumping-station, and in the selection of the equipment for a station, this should be the basis for determining it.

good thermal efficiencies out of our individual boiler plant equipment and the prime movers, there is room for considerable improvement in the over-all plant economy. A gain of a few per cent in efficiency in each part of the plant may mean a considerable reduction in the total annual expense. Consequently, when it is possible to make a small gain by improvement to any part of the plant equipment, it is advisable to do so, as the various improvements, made regu-

larly, will ultimately make an excellent showing in the plant operation.

### Motor-driven Pumps

Since the development of the central station to its high degree of efficiency, including the extensive transmission systems emanating from such stations, there are conditions where electric motor-driven pumping-plants would show a considerably higher duty per dollar of annual charges than a very highly efficient steam plant. This is particularly true in the smaller installations and where electric power is available at reasonable rates. Where synchronous motors can be used, central stations are offering attractive rates to the water pumping-plants, as this type of motor assists in correcting the power factor of the transmission system, and the hours for pumping can be, in a great many cases, arranged to suit the central station. Motor-driven centrifugal pumping units have been installed that have shown a combined overall efficiency of 82 per cent, which is a very good showing when we consider that the mechanical efficiency of a vertical triple expansion fly-wheel pumping-station is about 93 per cent. Reliability of service is one of the principal reasons why electric drive has not been more generally adopted. However, with the duplicate or loop transmission lines and interconnected central stations, practically as great a reliability as that of the self-contained plant will be secured. Furthermore, emergency equipment operated independently by an inexpensive steam or oil engine installation may be provided, thus insuring absolutely continuous service, and by carrying the fixed charges on this emergency equipment, together with the small amount of operating expense that may be incurred in its operation, plus the regular operating expenses and fixed charges of the electric-driven plant, the annual charge of the entire installation may be considerably under the annual charge of a highly efficient steam plant. Some of the larger central stations have their plants installed at the coal mines and own these mines, consequently their fuel costs are not subject to the wide fluctuations of the average water pumping-plant, and as a result, by considering the annual operating and fixed costs over a period of

years, the purchase of electric power will in a great many instances show up considerably under that of producing the power. Superpower plants and systems are being built, and the greater the system, the greater the advantages of purchasing power over producing it with isolated plants. The pumping-stations located in the superpower zones may well look to electric-driven equipment, or a composite electric- and steam-driven plant so arranged and operated as to take advantage of the low power costs, low fixed charges, flexibility and simplicity of operation.

### Diesel-Engine-operated Plants

The Diesel type oil engine has been developed to a very high state of efficiency and reliability, and in certain localities this type of pumping-plant would probably make an unexpected showing in so far as the annual costs are concerned. The investment in this type of equipment is very high, but the fuel economy is high. Such engines reach a thermal efficiency of 35 per cent, and in localities where coal is very expensive and electric power is not available at satisfactory rates, it would pay to investigate the feasibility of such an installation before definitely determining upon any type of plant.

### Summary

In stations having a daily capacity of 10 million gallons and above, and with coal costs around \$6 per ton, the high-pressure steam-driven centrifugal pump will ordinarily show the best duty per dollar of annual charges, over any other isolated type of plant. In plants below this capacity, each particular installation would require a thorough investigation and a careful balancing of all costs, before a definite type of plant could be decided upon. It is generally recognized that in plants of 3- to 5-million-gallon daily capacity, the cross-compound fly-wheel pumping-engine will make the most favorable showing. In regard to thermal efficiency, this may be very true, but it would not hold in every case if the duty per dollar of annual charges was considered.

ACKNOWLEDGMENT.—From a paper presented at the Convention of the American Water Works Association, Detroit, Mich.

# A 2,500-Kilovolt-Ampere Diesel Engine Power-Plant

A Description of the Calumet Station of the Sanitary District of Chicago

**T**HE sewage pumping-stations at Chicago, which are required to operate at all times, are served with power from a 30-mile, 44,000-volt transmission line from the Sanitary District's hydroelectric plant at Lockport, Ill. As this long transmission line could not be entirely depended upon, especially in times of severe storms, when it is quite essential that the pumps operate at their maximum capacity in order to handle the storm flow in the sewers, a standby plant located at Chicago was found to be a necessary part of the power system.

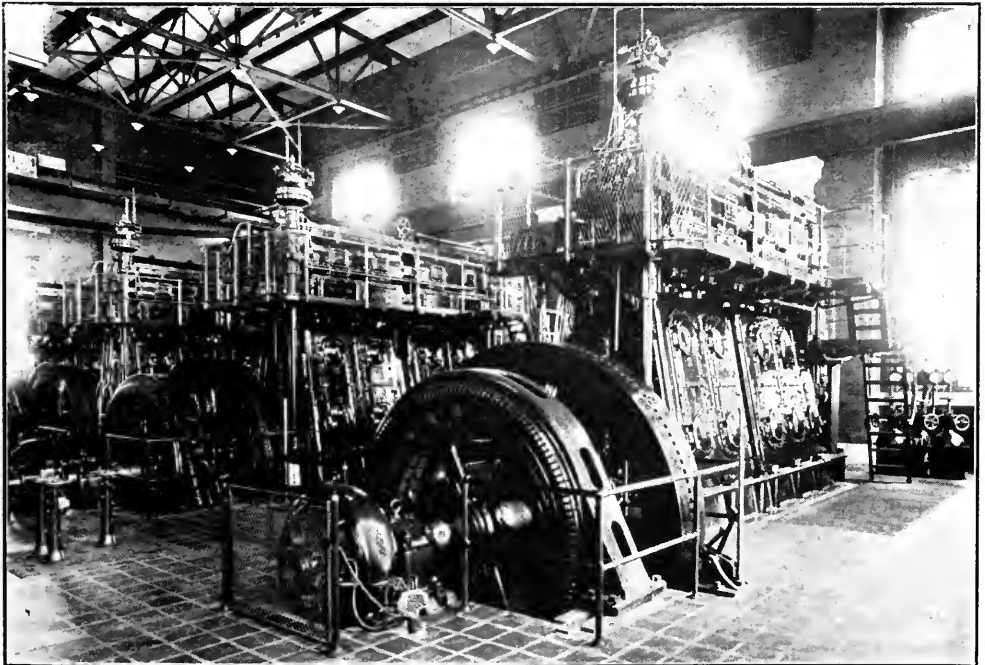
After a thorough study of all types of prime movers, the Diesel engine was selected for standby service. The advantages of such an installation include the elimination of a large portion of normal standby losses, such as banked fires in steam plants, the quick-starting characteristics of the Diesel, which render its full power available within two or three minutes, and

its very high thermal efficiency, which permits a Diesel standby plant to be profitably operated as an auxiliary plant.

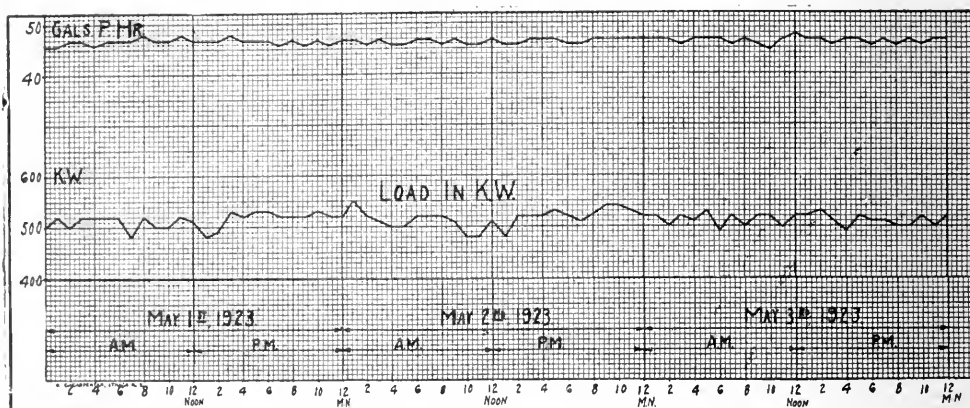
The power units of this station consist of four 750-b.h.p., 180-r.p.m. Busch-Sulzer vertical, two-cycle, Diesel engines, each direct-connected to a 625-kv.-amp., 60-cycle, 3-phase, 2,300-volt General Electric generator. The station is quite modern. The exterior walls are of vitrified pressed brick, trimmed with light gray Indiana limestone. The interior walls are lined with salt-glazed pressed brick of two shades, in paneled effect, with terra cotta trim. The engine-room floor is finished throughout with red tile.

With the exception of the air starting tanks and the control board, all of the auxiliaries, such as fuel pump, lubricating oil tank, water pumps, etc., are in the basement.

Although the original purpose of this station was as a standby to the high-tension



VIEW OF THE POWER-PLANT OF THE SANITARY DISTRICT OF CHICAGO, SHOWING FOUR 750-B.H.P. DIESEL ENGINES



**TYPICAL DAILY LOG OF THE CALUMET POWER-STATION, UNIT NO. 2, CHICAGO SANITARY DISTRICT**

This is the record of a 750-b.h.p., 180-r.p.m., 2-cycle, Busch-Sulzer Diesel engine, running a 500-kilowatt, 3-phase, 60-cycle generator with an average load of 513.7 kilowatts and an average fuel consumption of 46.58 gallons per hour, or 11.03 kilowatts per gallon

transmission line from Lockport, shortly after it was placed in operation, in 1922, the coal shortage caused it to be operated at full capacity. Its economical record has resulted in its continued operation.

The typical daily log shown in the illustration gives the record of the fuel consumption of unit number 2, Calumet power-station, for three days, May 1, 2 and 3, 1923, which may be taken as average results for a two-cycle engine of this size which has been in service for one year or more. The engine was first started on May 8, 1922.

The log does not show test records, but actual average operating fuel economy. The output of 11.03 kilowatt-hours per gallon, corresponding to 463.26 kilowatt-hours per barrel, shows a fuel consumption per kw.-hr. considerably less than one-half that of steam plants of much larger size.

As this Diesel plant operates in parallel with a hydroelectric station 30 miles away, it is allowed to float on the line, and the individual engines carry a fairly constant full load. It is interesting to note that these units, which are rated at 500 kw., are carrying an average load of 513.7 kw. in regular service. Usually, for constant load conditions, Diesel engine manufacturers recommend providing about 10 per cent excess capacity, because the normal wear of cylinders, piston rings, and valve-seats will result in some loss of compression and gases of combustion between overhaul periods of any considerable length, which will reduce the actual capacity of the engine. The

absence of admission and exhaust valves in the two-cycle type favors carrying loads more nearly corresponding to normal engine ratings for long periods, and it would appear that less margin of engine capacity need be provided.

There are a great many large central stations and industrial power-plants located along the Atlantic seaboard using fuel oil under boilers for the generation of electric power. The best efficiency records which have come to our attention show a production of a kilowatt-hour with a consumption of 1.2 pounds of fuel oil, by very large steam turbines, under the most favorable unit load factors and operating conditions. Diesel engines of 1,500-kw. capacity and larger will produce a kilowatt-hour with a fuel consumption of approximately 0.6 pound under less favorable unit load factors, as the Diesel fuel consumption curve is almost flat from full load to three-quarter load, and the efficiency falls less rapidly down to half-load than in steam plants. Standby losses and losses in inefficient auxiliaries are also avoided.

Several American Diesel engine manufacturers are offering units as large as 4,00 b. h. p. at prices which bring the overall cost of plants of this size to around \$150 per kw. Steam plants vary greatly in cost, depending upon local conditions, especially covering the cost of condensing water; but higher boiler pressures and superheater steam equipment are rapidly increasing the cost of modern steam tur-

bine generating stations. Some at present under construction will cost \$135 per kw.

A difference of only \$15 per kw. in first cost is quickly overcome by the Diesel reduction in cost of producing power. The additional fixed charges at, say, 15 per cent, amount to only \$2.25 per kilowatt-year. At 60 per cent load factor (5,256 kw.-hrs. per annum) this corresponds to less than one-half mill per kw.-hr. in the total cost of power, as against a Diesel fuel saving of several mills.

An erroneous idea of the actual higher first cost and fixed charges of large Diesel engine plants has, in the past, worked against their more general adoption. The life of the Diesel has now been established at in excess of 20 years. The increased cost of modern steam plants, employing higher boiler pressures and higher superheat, is leading engineers to consider more carefully and with greater favor the Diesel engine as a heat engine using far higher temperatures than are possible with steam.

## Will It Pay to Burn Oil Instead of Coal?

This Simple and Handy Chart Will Assist in Deciding That Question for Municipal Steam Power-Plants

By W. F. Schaphorst, M. E.

TO use the accompanying chart it is merely necessary to zigzag across as indicated by the dotted lines, and column G, which is pointed at by the arrow at the top, tells the number of B. T. U.'s. there are to each ton of coal or gallon of

oil purchased; that is, the same column G applies to both oil and coal.

In figuring the oil, begin at the left and zigzag toward the right to column G. In figuring coal, begin at the right and zigzag toward the left to column G. If the oil, for

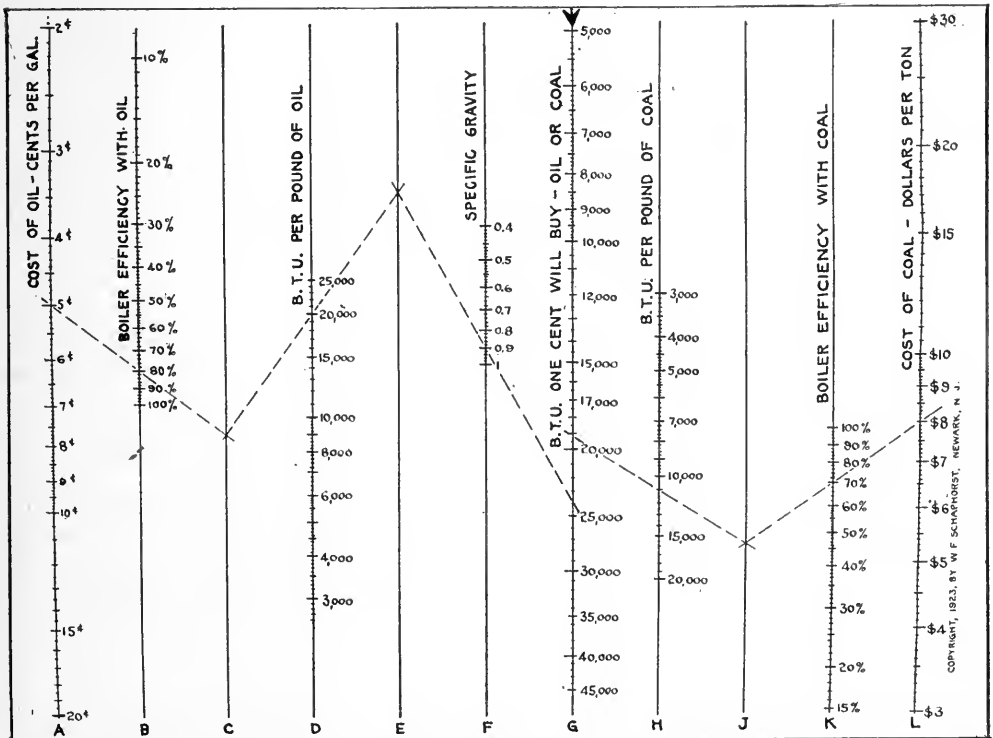


CHART FOR DETERMINING ECONOMY IN USE OF OIL OR COAL UNDER VARYING CONDITIONS IN MUNICIPAL POWER-PLANTS

instance, contains 20,000 B. T. U's. and the specific gravity is 0.9, and if the boiler efficiency with oil fuel is 80 per cent, the zigzag dotted line respective figures show that each cent will buy 24,000 B. T. U's.

Begin at 5 cents, column A, and run through 80 per cent, column B, with a straight line. This locates the intersection with column C. From this intersection, go through the 20,000, in column D, to the intersection with column E. From this last intersection go through the 0.9 column F, and the final intersection with column G then gives us the answer—24,000 B. T. U. for each cent.

Now, comparing with coal, we begin at the right. If coal costs \$8 per ton of 2,000 pounds, and if the boiler efficiency, using the same boiler as above, is 70 per cent with coal, and if each pound of coal contains 11,000 B. T. U's., each cent will buy about 19,200 B. T. U's., as shown in column G.

As will be noted, the \$8 is found in column L; 70 per cent boiler efficiency is in column K. Run a straight line through both points and locate the intersection in column J; run a straight line through the 11,000 in column H, and the intersection with column G gives us 19,200 B. T. U's.

In other words, the solution of this problem indicates that the use of this oil at 5 cents per gallon will furnish nearly 5,000 B. T. U's. more for each cent than will coal at \$8 per ton.

In using column A, the cost per gallon should include all costs—cost of hauling, cost of storing, etc.

It is well known that boiler efficiencies with oil are usually greater than with coal. The difference often is as much as 10 per cent, as in this problem, where we use 80 per cent in column B and 70 per cent in column K.

Regarding specific gravity given in column F, an easy way in which to determine this is to take any vessel, such as a phial, jug, or bottle, and weigh it. Then fill it with water and weigh again. Subtracting the weight of the container, and dividing

the exact weight of the oil by the weight of the water, the quotient is the specific gravity. The less delicate the scales used for weighing, the greater should be the size of the vessel.

Where a sample of the oil is not available and where the density of the oil is given in degrees Baume, the following table will be found useful in connection with column F:

Degrees Baume	Specific Gravity
10.....	1.0
15.....	.97
20.....	.93
25.....	.90
30.....	.88
35.....	.85
40.....	.82
45.....	.80
50.....	.78
55.....	.76
60.....	.74
65.....	.72
70.....	.70
75.....	.68
80.....	.67
85.....	.65
90.....	.64
95.....	.62
100.....	.61

To calculate the specific gravity, knowing the degrees Baume, simply add the degrees Baume to 130 and divide the sum into 140. The quotient is the specific gravity.

As for the cost of coal, column L, this is similar to column A and must include all costs such as hauling, storing, pulverizing, and, if purchased some time ago, the interest on the purchase price.

This chart may be used in several ways for solving various problems. Thus, by zigzagging clear across from left to right from column A to column L, knowing the cost of oil and all the necessary intermediate factors, column L gives the equivalent cost of coal. Or, zigzagging toward the left from column L, we get the equivalent cost of oil. Thus, with coal at \$6 per ton and the boiler efficiency at 70 per cent, we should find that a heat value of 10,300 B. T. U's. per pound of coal would give us no advantage in using oil, as regards cost of oil. But oil has other advantages, such as greater simplicity, less labor required for firing, less storage space required, etc.—all to be considered.

**GOOD ROADS BENEFIT ALL**

The people are cognizant of the fact that improvement of the rural highways of the state redounds to the common good of all and that what they invest in general good road projects brings them returns that are well worth while for themselves. Good roads are an important factor in marketing facilities. They are an agency that brings city and country into closer contact and better understanding each of the other. They widen the radius of pleasurable diversion by making distances less formidable. They attract to the state tourists and vacationists who leave behind them a great aggregate of money in the course of a season. They make the state a more attractive field for investors, particularly for settlers on farm lands. They bring comfort and satisfaction where before there were the opposites of these.

—The Minneapolis Tribune.

# Clean Streets Help Winter Traffic in Providence, R. I.

By J. H. Johnston

Assistant Engineer and Superintendent of Highways, Providence, R. I.

**I**N order to appreciate the particular need for the removal of snow from the downtown streets in Providence, it must be understood that this is a city of 300,000 inhabitants, with a down-town section which is badly congested. Providence clings to the ancient custom of allowing automobiles to park along the curb in the business section. In the center of the city is Exchange Place, a beautiful square and civic center which from seven in the morning to seven at night looks more like an auto park at a football game. Even on the one-way streets autoists are allowed to park on one side for an hour, and if it were not for the efficient coöperation of the Police Department, the Highway Department would be greatly handicapped in handling such large amounts of snow as it was forced to tackle last winter.

## Methods of Removing Snow

As soon as snow begins to fall, six horse-drawn sweepers, with chains on the wheels,

similar to those used on automobiles to keep them from skidding, are started out in batteries of three. One horse-drawn road machine is sent out with each battery to handle ridges of snow when too heavy for the sweepers. The snow is pushed to the gutter.

When the snow measures about 2 inches deep, six other horse-drawn machines are used in the narrow down-town streets in batteries of three to throw the snow to the side used for parking. Then, when the snow is in ridges, ten ordinary snow-scoops, similar to those used for clearing snow from ice ponds, only larger, are used. The narrow streets are cleared, the snow being piled on other streets which are wide enough to use steam shovels. In this way the snow is compacted to about one-half its original volume.

To make these piles deeper and larger, five Champion one-way snow-plows attached to the city's oil-spraying trucks are used. The steam shovels are No. 4 Keystone



**SOLVING THE PROBLEMS OF SNOW REMOVAL IN PROVIDENCE, R. I.**

Top.—Keystone excavator with special snow bucket loading motor trucks at rate of 8 cubic yards in 3 minutes. At left.—Battery of horse-drawn snow scoops removing snow from near curb. At right.—Three trucks dumping 60 cubic yards of snow per minute into river from bridge



shovels with skimmer buckets which are used for excavation on street construction in summer. Extra large buckets have been developed which are much lighter than the ordinary skimmer scoops and are especially adapted for snow. These buckets are 66 inches long, 24 inches deep, and 42 inches wide, and are made of 3/16-inch sheet steel. With these buckets and machines it is possible to load 8 cubic yards of compact snow in less than 3 minutes.

Practically nothing but motor trucks is used for hauling. Each truck is greased twice a day with oil from the crankcases saved from the garage. The snow is dumped into the river from a bridge from which three spaces of railing have been removed. During a two-day storm last winter, between 50 and 60 cubic yards of snow were dumped into the river per minute with 200 men, 50 trucks and 20 teams.

#### Organization Plans

Each machine, motor truck and digger goes directly to the station to which it was assigned at the first of the season and always follows the same route. Each foreman has a station with the list of the men and trucks he is to have and also the streets

in the order in which they are to be cleaned. Each man has a slip with the name of his foreman and the station to which he is to report in case of snow. Several tool wagons are kept loaded with necessary tools and are driven to the stations of the foremen so as to be there before 7 o'clock.

At the dump we have one foreman and eight men. When a truck backs up to dump and the snow does not all come out, the driver is ordered to pull to one side, and a couple of men with a hoe and scraper blade with 10-foot handles clean out the snow. By this arrangement no trucks are held up.

For removing ice, a maintenance roller is used, with two rims on the front wheel and short picks on the rear wheels. This has proved fairly successful. A No. 8 leaning wheel grader with a scarifier attachment drawn by four horses has also been used successfully.

The secret of successful snow removal is to start handling the snow when it begins to fall and keep everlastingly at it, and to have methods so systematized that each man knows just where he is to go and just what he is to do long before the first flake of snow falls in the winter.

## Snow Removal in a Small City

Helpful Suggestions Based on the Experience of a New England Town

By B. I. Miller

Town Manager, West Hartford, Conn.

THE town of West Hartford has a population of about 11,000 people, a very large number of them doing business in Hartford, which joins it on the east. While there are five trolley lines connecting the two places, a large number of people drive to their work in autos, and if the roads are not kept open, the trolley cars are taxed to their limit in the winter-time.

There are approximately 80 miles of roads in the town, including macadam, concrete, asphalt and dirt roads, and with the ever-increasing amount of motor traffic it seemed necessary that the roads should be kept open for this traffic the entire year. In the winter of 1919-20 the first snow-plow was purchased for use on our 5-ton truck, and it worked very satisfactorily until the snow

became so hard after several severe sleet and ice storms that the plant could not handle it. In the winter of 1920-21 there were but few heavy snows, and the one outfit kept all of the thickly populated roads and most of the others in good shape for motor traffic.

In the winter of 1921-22 we purchased another snow-plow for a 5-ton truck, and the two outfits kept the roads in excellent condition for motor traffic. In 1922 several new roads were laid out and the greatest amount of building in the history of the town was done. Over four million dollars' worth of building permits were issued, most of them for high-class residences, many of which were erected on streets without improved pavements. Later it became quite



BY CLEARING THE STREETS THE FULL WIDTH AT THE BEGINNING OF THE WINTER, WEST HARTFORD, CONN., PROVIDES ROOM FOR LATER SNOW REMOVAL

difficult to keep these streets open, so a third snow-plow for a 5-ton truck was purchased.

To anyone who lived in the New England States during the winter of 1922-23 it is unnecessary to describe the conditions. To others it may suffice to say that it was one of the most severe winters ever known in this section of the country as to the amount of snow that fell, duration and low temperature, and the extreme shortage of fuel made it a season never to be forgotten. The first snow-storm of any consequence came on January 3, 1923, and the last one came on March 1, 1923, and during that time 69.8 inches fell, 40 inches of it in January.

#### Difficulties Encountered

Many of the residents had not been able to put in a full supply of coal for the winter, and the work of keeping the dirt roads open so that fuel and other supplies could be delivered daily became quite a problem. The snow coming so early in the season had kept the ground from freezing much over 6 inches in depth, and while the first snows which came could be plowed out with the trucks, when more came later and it became harder to push it back with the plows, the rear wheels of the trucks would break through the 6 inches of frozen dirt on top and the trucks would be stuck. There would be considerable delay in getting them out, and then they would go only a short distance before the same thing would happen again, so it became necessary to try some other method on dirt roads. These delays and heavy snows coming every few days made it impossible to keep all of the roads as free from snow as they should be, even by working the two trucks twenty-four

hours per day with two crews of men to each truck.

As we had succeeded in keeping the roads open for motor traffic the two preceding winters, although there was not so much snow, we were determined to continue to keep them open. In January, 1923, we purchased a 5-ton Holt tractor and snow-plow, and after this outfit arrived there was no trouble in keeping the dirt roads open, as it could be driven over any of these roads, no matter how soft the ground was, and not break through the thin frozen surface. In places where the roads had been plowed out and the trucks had not had time to go over them before the snow drifted in to the depth of 4 or 5 feet, the tractor could be driven over these places three or four times each way and clear them out so an auto would have no trouble in going through, and later the sides of the cut through the drifts could be pushed back with it.

#### Good Morale Necessary in Organization

Several things are necessary to the successful clearing of snow from roads and keeping them cleared at all times in a severe winter for good motor traffic. It is important to secure good truck and tractor drivers and laborers and let them know that they are receiving something besides their day's wages; that they are receiving the appreciation of the officials and public for the good work they are doing. Last winter we worked the two trucks and plows twenty-four hours a day with each shift of men, working twelve hours without extra pay except for the extra hours, and that at the regular rate per hour, and they worked through some of the worst storms we had. The foreman of streets worked

every day and late into the night and took great pride in the work accomplished.

Good men are handicapped unless they have good equipment. As most municipalities have some trucks on hand, the most economical start toward clearing snow from the roads can be made by equipping the trucks with snow-plows. If there are many dirt roads or roads that drift badly, by all means purchase a tractor. If all the equipment has to be purchased new, it is advisable to purchase all tractors; I believe they can be worked to better advantage than trucks in most places.

To use a truck with a plow, it should be loaded with about 3 tons of stone or other material, and should have regular non-skid chains on the rear wheels with twice as many cross-chains as come with them, and good lights, and besides the driver a man to raise and lower the plow and three men to help shovel out when the truck is stuck or turning around. Much time is saved by having these extra men to help shovel when necessary, and time counts when it snows every other day. With a tractor, a man to raise and lower the plow is all that is needed besides a driver, as a tractor can be turned around in snow much easier than a truck. If possible, keep the trucks on streets where they can turn onto an intersecting street and then onto others until they come back to the first one, for this saves a lot of turning around.

#### **Scheme of Operation**

As soon as the snow is six or seven inches deep, start your plows, no matter if it is five or six o'clock or later in the afternoon, for there is less traffic to meet in the night, and keep them going until all the roads are cleared the width of the plow, going through and back. When this is completed on all roads, send the plows through as many times as necessary, to push the snow back toward the sides of the road as far as practicable and make room so that when the next snow comes it can be pushed back. This is very necessary, for if the roads are not cleared full width the first part of the season, you will have very narrow roads the last of the season. This sending the plows over the roads to push the snow back after being

cleared a fair width, caused more criticism in West Hartford by the taxpayers than anything else at first, but since last winter there has been none. After all of the roads are well cleared, sometimes a wind will come and cause drifting in places. It is much easier to care for this condition by starting the plows as soon as the drifts begin to form, and keep them going through the drifted sections several times a day. It is the only way to keep a road in a cut cleared without shoveling.

#### **Great Convenience to the Traveling Public**

The reader may ask whether clearing roads of snow is expensive. After my experience of last winter I would answer emphatically no, if you consider the great convenience to the traveling public. I firmly believe that within a very few years a motor vehicle will be able to travel in nearly all of the towns and cities in the winter as well as in the other seasons of the year. West Hartford has a list of over twenty-five million dollars' worth of taxable property, and the cost of keeping the roads clear for motor traffic last winter was \$5,-953.04, which is a very small portion of the tax.

While at first some of those taxpayers who walked to the trolleys to get to their work felt that they received no benefit from the clearing of snow, they changed their minds after the severe winter of 1922-3. They found if the sidewalks were not shoveled in the morning they had a good place to walk in in the streets. Those who lived on outlying streets found that there was no excuse for the grocer, the butcher and others for not delivering goods to their residences, as there had been in the past on account of roads blocked with snow. When the man who went to bed with a young blizzard raging outside got up the next morning and found he could drive his auto to his office as well as he could in the summer-time, he was of course pleased. Last but not least, the doctor was pleased when he found he could drive to his patients' homes and not have to leave his auto on a main thoroughfare and walk a long distance to get there.

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# An Outline for Codifying Municipal Ordinances

By Edward D. Greenman

Assistant Director, New York State Bureau of Municipal Information

**I**F the uncoded ordinances of many cities were brought together, they would present as incongruous a collection of freak, antiquated and heterogeneous regulations as it is possible to conceive. And perhaps one of the best ways to begin the codification of the ordinances of some of our cities would be to violate a quite common prohibition and have a big bonfire. Even in New York State there are some cities which have ordinances still in effect adopted from twenty-five to fifty years ago. In general, however, the ordinances of most of the cities of this state are representative of the best regulations enacted, have been carefully and skillfully drafted, and have stood the test of many court decisions. Chicago, Philadelphia, St. Louis and other cities regulate almost every conceivable municipal interest, and in great detail. Their codified ordinances comprise volumes of from 1,500 to 2,000 pages each. New York City's code seems small in comparison, but the ordinances as adopted by New York City are admirably condensed regulations, promulgated in clear, concise language and printed in compact form, with an excellent index.

The importance of periodically codifying and publishing all existing penal and regulatory ordinances, giving the changes in the revised regulations and a list of repealed laws, should be given serious consideration by every city. Each state should have a law requiring every city to keep an accurate file of its ordinances and to publish them periodically in code form for general

distribution. Most city charters make some provisions for the publishing of ordinances, but this is usually only required before an ordinance can become a law. The common custom is to prescribe that all new regulations be published in local papers. After this has been done, many municipal laws seem to be almost forgotten, and the lack of knowledge the average citizen has regarding the municipal regulations under which he is living and which he is supposed

to obey is surprising. To obviate this, it is often found of special benefit and convenience to issue booklets of pocket size containing the regulations on subjects of particular interest to certain classes of people. Ordinances on sewers, taxicabs, fire prevention, garbage collection, traffic regulations, sanitary codes, building

codes, etc., have been issued in this form with very effective results. Fort Collins, Colo., advertises its ordinances in street cars.

The subjects covered by municipal ordinances include every conceivable phase of human activity, with, however, a natural tendency and uniformity along certain lines. Ordinances on public health, public morals, public safety, public improvements, and the regulation of trade are common to all cities. Nuisances are quite generally restricted, with animals, smoke, noises, and weeds regulated in detail. Building codes, sanitary codes, plumbing codes and electrical codes are becoming universal. Police and fire departments are frequently regulated in great detail, even the kinds of buttons for uniforms sometimes being specified. In

## Accessibility of Ordinances

Frequent changes in the personnel of city administration make it essential that a certified copy of all ordinances be kept in readily accessible form. One of the greatest difficulties confronting the courts, the legislature and city officials in dealing with municipal problems is the almost universal lack of a proper codification of local municipal laws and ordinances. It is contrary to the principles of good government for city officials to permit ordinances to become dormant or to be continually violated with little or no effort made to enforce them.

many cities the duties and powers of appointive officials are regulated by ordinance, in other cities more properly by charter.

Distinctive ordinances representative of special local interests are common. Lockport, N. Y., regulates in detail the manufacture and sale of vinegar; Los Angeles, Calif., regulates motion picture studios and aircraft; El Paso, Texas, prohibits the sale of Indian hemp; Augusta, Ga., controls the weighing, storage and hauling of cotton; New Bedford, Mass., has an ordinance on fish markets and fishing; Pittsburgh attempts to control the smoke nuisance; and many coast cities are now trying to regulate the pollution of harbor waters by oil-burning vessels.

Peculiar and unusual ordinances are found in many cities. Mount Vernon, N. Y., Grand Rapids, Mich., and Seattle, Wash., have ordinances licensing cats. New York City has an ordinance stipulating that all news-stands must be painted a shade of green prescribed by the chief engineer, and also an ordinance prohibiting the disturbance of fish in any of the city fountains. Boston prohibits females from the trade of bootblacking. Cities having a large foreign population usually have strict regulations regarding gatherings and assemblies, requiring that the American flag be displayed and all speeches be made in the English language. In one city an accident resulting from a flower-pot falling from a window caused that city to pass an ordinance prohibiting the placing of flower-pots on window ledges. One of the very latest of unusual regulations is an ordinance recently adopted by the city of Atchison, Kans., which makes it "unlawful for anyone to unnecessarily and electrically disturb the atmosphere within the limits of the city by any means whatsoever not necessarily incident to the operation of some device, mechanism or apparatus used and useful in any business, trade or occupation."

The difficulties met with in satisfactorily formulating regulations to conform to legal and local restrictions are innumerable and sometimes seem insurmountable. However, many of the difficulties and problems constantly confronting cities in the drafting of satisfactory ordinances have been solved and overcome by other cities. It is therefore important that every city official should

know what has been done in other cities, or he may waste his time in doing what already may have been well done, or in repeating failures. While local conditions and needs make it necessary for every city to decide for itself what regulations are necessary, much can be learned from the experience of other cities, and in many cases time and labor can be saved by using their regulations as a basis for formulating ordinances which will be compatible with local and legal limitations.

On account of the rapid growth and development of our cities, together with the application of modern scientific progress to city problems, there has resulted a consistent demand for many regulations dealing with highly technical subjects. In drafting such regulations the advice of experts is essential, and in the formulation of ordinances on sewage disposal, sanitation, explosives, smoke abatement, aircraft, or even public utilities, authorities in each of these fields should be consulted.

A city has power and authority to do only such things as its charter and general or special state laws or state constitution expressly authorize. All ordinances and regulations, therefore, must be in strict conformity with charter provisions as well as with constitutional and statutory limitations. In the drafting of ordinances the provisions must be reasonable, they must not be oppressive, and they must not make special or unwarranted discriminations. They may regulate trade, but not restrain it. It is essential that all regulations be drafted in simple, definite, non-technical language, incapable of different or conflicting construction. Too often ordinances are very ambiguous and difficult to interpret. The command or prohibition, therefore, should be expressed in the most direct and understandable phraseology—"Thou shalt" or "Thou shalt not."

All ordinances passed by local legislative councils may be grouped or classified under one of the following:

1. Administrative, or those regulations made for the guidance of municipal officials in their conduct and management of departmental activities
2. Penal ordinances regulating public conduct and activities, prescribing penalties for specific commissions or omissions
3. Improvement ordinances authorizing the construction of public improvements,

such as streets, sewers, water service, lighting, etc.

4. Financial, or those authorizing bonds or loans, or providing funds for municipal purposes
5. Franchise ordinances granted to public utility companies, giving special privileges in return for providing public utility needs

Improvement ordinances authorizing the issuance of bonds to pay for such improvements are not customarily included in a municipal code, but should be carefully preserved and indexed for ready reference. Most of the ordinances adopted by municipal councils are regulations of this nature. Such ordinances are only of temporary interest and are so extensive in number and volume as to preclude any possibility or need for their inclusion in a published municipal code.

A study of municipal codes recently made by the New York State Bureau of Municipal Information reveals the fact that very few municipalities have separated their ordinances into administrative and penal codes. In the code of the city of Cincinnati, title I deals with the organization of city departments. Dallas and Waco, Texas, have their ordinances separated into civil and criminal codes. The codes of Philadelphia, Pa., and Quincy, Ill., contain numerous chapters prescribing rules and regulations for departmental organization and administration. Berkeley, Calif., has a complete administrative code. Mt. Vernon, N. Y., is now preparing an administrative code along the lines suggested in the model outline for a municipal code prepared by the New York State Bureau of Municipal Information, section headings of which are given below.

Very little attention has been paid in municipal codes to a consistent, logical or convenient arrangement for municipal regulations. For many years the custom prevailed of arranging ordinances numerically in order of their adoption. This arrangement is still followed by many cities, the existing ordinances of some of which are dated back from fifty to seventy-five years. Such numerical arrangement makes it impossible to file ordinances on the same or related subjects together, and necessitates a complete index to enable one to find any ordinance on a given subject. The most convenient and usable grouping is a classification of the ordinances on related sub-

jects into chapters, articles and sections. Since all valid ordinances are binding upon inhabitants and visitors, and operative on property within the corporate limits of the city, it is a reasonable and just requirement that the existence of such ordinances should be placed before the public in readily intelligible and easily accessible form.

For the purpose of assisting cities to prepare municipal codes comprising the subjects usually covered by these codes, the following outline is suggested. This can be readily adopted in whole or in part, as may be found best suited to the needs and limitations of each city. This outline was prepared by the New York State Bureau of Municipal Information for the use of the cities of New York. It is an attempt to present and group related subjects into chapters, articles and sections, as a basis for a model municipal code. All ordinances have been arranged into two groups—Administrative and Regulatory. Ordinances affecting the city departments, bureaus, and boards have been placed in an Administrative Code; all other ordinances have been grouped into regulatory chapters. This outline is sufficiently elastic to be made applicable to small or to large cities by condensing or expanding the number of subject headings. It lists the subjects which are usually regulated by ordinances, and provides ample space for inserting special subjects either locally interesting or necessary to meet changed conditions.

In formulating this outline, the ordinances of New York State cities were taken as a basis. Every subject herein presented is now being regulated by one or more cities. The best codes of American cities outside New York State were also consulted for suggestions. The aim has been to provide a flexible and comprehensive outline of suggested subjects and to classify those closely related into groups. It is obviously impossible to prevent some separation of related subjects or to find a distinctive place for every subject. In the sanitary code, for example, are regulations relating to streets, buildings, markets, foods, etc. In the chapter on city planning are found subjects which might be placed under streets. The plan of dividing subjects into chapters, articles, sections, etc., has been adopted to provide an outline capable of indefinite expansion by permitting the arrangement of new regulations with their

related subject. This cannot be done under a system of numbering ordinances consecutively.

### Suggested Outline for a Model Code of Municipal Ordinances

#### ADMINISTRATIVE CODE

##### CHAPTER I

- |                                 |                                 |
|---------------------------------|---------------------------------|
| I. Legislative                  | X. Public safety                |
| II. Courts                      | XI. Public welfare              |
| III. City buildings and grounds | XII. Health department          |
| IV. City officials              | XIII. Public markets            |
| V. City employees               | XIV. Weights and measures       |
| VI. Law departments             | XV. City planning               |
| VII. Finance department         | XVI. Public works               |
| VIII. Assessment and taxation   | XVII. Harbors, rivers and docks |
| IX. Purchasing department       | XVIII. Public utilities         |
|                                 | XIX. Recreation                 |
|                                 | XX. Education                   |
|                                 | XXI. Miscellaneous              |

#### PENAL CODE

##### CHAPTER II—ELECTIONS

- |                        |                       |
|------------------------|-----------------------|
| I. General regulations | II. Special elections |
|------------------------|-----------------------|

##### CHAPTER III—PUBLIC SAFETY

- |                                  |                     |
|----------------------------------|---------------------|
| I. Traffic rules and regulations | II. Fire prevention |
|                                  | III. Explosives     |

##### CHAPTER IV—PUBLIC HEALTH—SANITARY CODE

- |                                    |   |
|------------------------------------|---|
| I. Definitions                     | XII. Miscellaneous provisions               |
| II. Animals                        | XIII. Offensive materials                   |
| III. Births, marriages and deaths  | XIV. Plumbing, drainage and sewerage        |
| IV. Buildings                      | XV. Railroad cars and other public vehicles |
| V. Cold storage                    | XVI. Street conditions                      |
| VI. Medical examiners              | XVII. Trades, occupations and businesses    |
| VII. Diseases                      | XVIII. Vessels and seamen                   |
| VIII. Drugs and medicines          |   |
| IX. Food and drink                 |   |
| X. General provisions              |   |
| XI. Midwifery and care of children |   |

##### CHAPTER V—PUBLIC WELFARE

- |                     |                                 |
|---------------------|---------------------------------|
| I. Public nuisances | relief                          |
| II. Charities and   | III. Labor and laboring classes |

##### CHAPTER VI—PUBLIC MORALS AND CONDUCT

- |                       |                           |
|-----------------------|---------------------------|
| I. Disorderly conduct | III. Gatherings, meetings |
| II. Games of chance   | IV. Miscellaneous         |

##### CHAPTER VII—WEIGHTS AND MEASURES

- |                   |                |
|-------------------|----------------|
| I. General        | III. Standards |
| II. Public scales |                |

##### CHAPTER VIII—BUSINESS AND TRADES

- |                          |                     |
|--------------------------|---------------------|
| I. Licensing and control | V. Trades           |
| II. General business     | VI. Merchants       |
| III. Advertising         | VII. Manufacturers  |
| IV. Vehicles             | VIII. Miscellaneous |

##### CHAPTER IX—BUILDING CODE

- |                             |  |
|-----------------------------|--|
| I. General                  | VII. Plumbing code (See Chapter X)     |
| II. Materials               | VIII. Electrical code (See Chapter XI) |
| III. Materials—tests        |  |
| IV. Construction            |  |
| V. Lighting and ventilation |  |
| VI. Heating                 | IX. Miscellaneous                      |

##### CHAPTER X—PLUMBING CODE

- |                  |            |
|------------------|------------|
| I. General       | IV. Sewers |
| II. Installation | V. Drains  |
| III. Materials   |            |

##### CHAPTER XI—ELECTRICAL CODE

- |               |                    |
|---------------|--------------------|
| I. General    | III. Equipment     |
| II. Buildings | IV. Current supply |

##### CHAPTER XII—CITY PLANNING

- |                   |             |
|-------------------|-------------|
| I. General        | III. Zoning |
| II. City planning |             |

##### CHAPTER XIII—PUBLIC WORKS

- |                |                                |
|----------------|--------------------------------|
| I. Sidewalks   | boulevards                     |
| II. Streets    | IV. Refuse and refuse disposal |
| III. Parks and |                                |

##### CHAPTER XIV—HARBORS, RIVERS AND DOCKS

- |                      |                      |
|----------------------|----------------------|
| I. Ports and harbors | III. Rivers, streams |
| II. Water-front      | IV. Bridges          |

##### CHAPTER XV—PUBLIC UTILITIES

- |                   |               |
|-------------------|---------------|
| I. General        | IV. Transit   |
| II. Power-plants  | V. Telephones |
| III. Water-supply |               |

##### CHAPTER XVI—RECREATION

- |               |                    |
|---------------|--------------------|
| I. Amusements | II. Outdoor sports |
|---------------|--------------------|

##### CHAPTER XVII—EDUCATION

- |               |              |
|---------------|--------------|
| I. Schools    | III. Museums |
| II. Libraries |              |

##### CHAPTER XVIII—MISCELLANEOUS

## The Ideal City

It must be a city where people diligently mind their own business and the public business, and do both with a decent regard to the judgment and rights of other men; a city where there is no boss rule in anything; where all men are not brought to the measure of one man's mind, or to the heel of one man's will; a city whose citizens are brave and true and generous and who care for their own; a city having the community spirit, but not the communistic spirit, where capital is respected, but has no temples; a city whose people live in homes, where there is room for a morning glory or a sweet pea; where fresh air is not delivered in pint cups; where the children every day can feel

the spring of nature's green carpet; where people are not so numerous as to suggest that decimation might promote the general welfare; where brains and manners, and not bank balances, give ratings to men; where there is neither flaunting wealth, nor envious poverty; where life is comfortable and toil honorable; where municipal reformers are not hysterical, but have the habit of keeping cool; where the broad judgment of a capital, and not the narrowness of the province, prevails; where the commerce in goods is great, but not greater than the exchanges of thought and of neighborly kindness.

—From an address by Benjamin Harrison, April 21, 1897.



# Engineering Problems in the Development of Jacksonville, Florida

An Outline of Present and Future Work, with a Plea for Rational City and Regional Planning

By W. E. Sheddan

City Engineer, Jacksonville, Fla.

**T**HE problems of the city engineer become more serious as time goes on.

The public is demanding more and more each year in the way of improvements. Each succeeding year conditions that were not given a second thought a few years ago call forth the most severe criticisms, and the demands are most urgent that conditions be met. The automobile is largely responsible for this change, as many of our demands are for good roads and streets. Pavement widths and types that were thought good for the lifetime of an ordinary person a few years ago, have proved entirely inadequate to meet present traffic conditions, making it necessary to rebuild roads long before the bonds by which they were constructed have been retired. We are again faced with the question, "How long will they be good for?" when the roads are rebuilt. In many instances, to construct the more expensive pavement, when the property owner is assessed for part or all of the construction cost, will be confiscatory, as the individual benefits do not justify the cost, but the traffic conditions demand the improvement.

## Paving Program

In Jacksonville we have many miles of unimproved streets, yet our paving program for the last ten years has included the rebuilding of many of our streets. Bay Street from Broad to Market has been repaved twice, once in 1912 and again in 1920. Others, also, have been repaved.

Where the width of roadway will permit, we are resurfacing old brick on sand with sand filler, pavements with a 1½-inch sheet asphalt surface, first filling depressions by tamping in a close binder, and spreading a 1-inch binder over the entire area.

We have under construction at the present time about 35,000 square yards of this

work, and, from the streets that have been completed, the indications are that this will prove an efficient and practical method. The cost to the property owner is only about one-third of the cost of a new pavement; the pavement looks good and is comfortable riding, and we are quite enthusiastic over the result. We have under contract some 63,000 square yards of 6-inch concrete pavement with a bituminous mat; 52,000 square yards of asphaltic concrete on a 6-inch concrete base, some of which is



CONSTRUCTING A 30-INCH REINFORCED CONCRETE PIPE SEWER ON LAURA STREET, JACKSONVILLE, FLA.

replacing old shell and limerock pavement; and 23,000 square yards of vitrified brick on limerock base; and we will relay about 14,000 square yards of old brick on sand, with bituminous filler.

This program calls for the expenditure of nearly \$600,000, the city providing one-third of the cost and the property owner being assessed two-thirds of the cost. This will give us an additional 15 miles of improved streets.

#### Drainage and Sanitation

Drainage and sanitation are probably the most difficult, as well as the most important, problems we have to meet. Conditions in Jacksonville are probably typical in a general way. Jacksonville comprises an area of approximately 15 square miles. This territory, comparatively speaking, is all very flat, the highest point being approximately 37½ feet above mean low water in the river. The large area, approximately 7 square miles, recently annexed to the city, is all very flat, having an elevation of 15 to 22 feet above mean low water in the river.

This entire territory of 15 square miles is drained through the different creeks emptying into the St. Johns River, of which the principal ones are Hogans Creek, McCoys Creek, Long Branch, Deer Creek, and Biglow Branch; the western part of the city has Moncrief Creek, Little Fish-weir Creek, and Willow Branch. A study has been made of the two principal creeks, and we figure that Hogans Creek has a drainage area of approximately 2,400 acres, and that McCoys Creek has a drainage

area of approximately 4,600 acres. The drainage areas for the other creeks are smaller, approximately 600 acres for Willow Branch, and approximately 1,000 to 1,500 acres for the other streams.

While this area was still in its wild state, these natural drainage courses adequately cared for drainage conditions, except for the flat woods pond area at the head of each of these branches. As this territory is being developed for city purposes, it is necessary that extensive underground structures be constructed to carry the water from the area that is being improved to the branches and thence to the river. As roof and paved areas increase, the run-off is proportionately increased, which tends to carry the water more rapidly and in greater quantities to these natural drainage courses.

In working out the drainage and sewerage plans for the city of Jacksonville, the engineers adopted—and did so wisely—separate systems for storm drainage and for sanitary sewers. In doing this, it was necessary to carry all the sanitary sewers to the channel of the river, where the volumes are much greater and will care for the sanitary sewerage without preliminary treatment. This necessitates the pumping of approximately two-thirds of the sewage of the city of Jacksonville. To do this there have been established six pumping-stations, which lift the sewage from the back areas to a higher level, and discharge it into the different gravity outfalls leading into the river.

By adopting the separate system, sani-



RESURFACING WORK IN PROGRESS ON ASHLEY STREET, JACKSONVILLE, FLA., IN APRIL, 1923



ASHLEY STREET, JACKSONVILLE, FLA., AFTER RESURFACING WAS COMPLETED, IN APRIL, 1923

tary lines can be constructed of smaller pipe than would have been necessary if a combined system had been constructed; and by the construction of the storm drainage system and utilizing the different natural drainage courses, the larger construction is much shorter and, owing to the flat condition of the country, is naturally divided into many units.

Up to the present time probably three-fifths of the entire city area has been provided with permanent drainage structures, and there still remains practically all of the outlying territory, comprising some 7 square miles recently annexed, in which drainage structures still have to be constructed. In developing a sanitary system for this outlying territory there will probably have to be at least two additional pumping-stations constructed, and at least two comparatively large and long trunk line sewers built from St. Johns River leading back into these territories. One of these sewers will probably empty into the river in the eastern part of the city, in the vicinity of the municipal docks, and the other will empty into the St. Johns River in the vicinity of Willow Branch and extend north and take in all the territory not now sewered in the western and northwestern part of the city.

The Engineering Department, as rapidly as possible with the limited forces available, is preparing data of the layout of these permanent drainage and sewer systems, but it will necessitate extensive topographical work before detail plans can be made.

We have under construction approximately 32,560 feet, or 9.98 miles, of drains of reinforced concrete pipe in sizes from 12 to 54 inches; and approximately 70,382 feet, or 13.33 miles, of sanitary sewers being constructed of terra cotta on concrete foundation, and of concrete and cast iron pipe in sizes of 6, 8, 10, and 24 inches. Some 200 catch-basins and connections are being constructed by city forces.

In my opinion and from my observation, the thing that has handicapped most Southern cities is the lack of a city plan and a definite program for developing our utilities. The sooner we realize this and make an effort to remedy this condition, the better off our cities will be for future development. This question should be approached with caution. A planner should be selected who is familiar with local conditions, who will give the matter serious thought and utilize what we now have to the fullest extent, and, above all, work out a plan that it is possible to follow and that will be practicable and at the same time take advantage of our natural conditions. In most cities the work should take an even wider scope and be covered by a regional planning scheme that would include future development and protection of water-supply; planning of drainage in outlying territory, with a view to mosquito elimination; comprehensive zoning schemes; control of subdivisions as to street layout; and a comprehensive park system.

ACKNOWLEDGMENT.—From a paper read before the Florida League of Municipalities.

# Trees for City Planting

By F. S. Besson

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District of Columbia

## The Tree System in General

A SATISFACTORY tree system can be had only when an organization and sufficient funds are available for carrying out methodically a definite project which provides not only for planting the trees but also for systematic trimming, spraying and other maintenance. The usual custom of permitting property owners individually to plant their own trees results in lack of uniformity in the variety of trees, irregularity in spacing, and selection of trees of inferior quality. Lacking intelligent maintenance, the trees fail from the standpoint of both beauty and shade, low-hanging limbs interfere with traffic, and insect pests annoy adjacent property owners.

The proper location for trees is at the curb, though this is disputed by many. It may be cheaper to put sidewalks next to the curbs and the trees at the back of the walks, and undoubtedly trees so located interfere with street lighting less than when located at the curbs, but this latter position gives a balanced effect to the street that outweighs the disadvantages. Moreover, terraces back of the sidewalks are usually raised several feet, and this height, varying from block to block, makes it impossible to get uniform plantings. For ordinary streets, only curb trees (but one line of trees on each side of the street) should be used; when a second row is planted between sidewalks and buildings, even on streets as wide as 120 feet between building lines, the trees are crowded and more shade than necessary is furnished. Often for second-row trees rapid-growing ones have been used, which overshadow and injure the hardwood trees at the curb. Under such conditions, the curb trees grow mostly on the roadway side and lean over to such an extent that vehicles brush against the tree trunks and suffer damage.

A common mistake is the planting of trees at intervals that are much too short. A spacing of 20 feet is often adopted,

whereas 35 feet should be the minimum, and this minimum should be adopted only for the smaller varieties of trees. In each block the trees should be spaced so as to give a balanced appearance to the street. However, on one side they need not be planted directly opposite those on the other side of the street, nor do the intervals between trees need to be equal; lamps, fire hydrants and other public appurtenances should be given consideration. The planting, as far as practicable, should be on the extensions of property lines between lots; then the trees will not interfere with future driveways or entrances.

Norway maples may be spaced from 35 to 45 feet, oaks from 50 to 65 feet, and elms from 55 to 70 feet. The planting of rapid-growing trees, such as silver maples or Carolina poplars, between the hardwood slow-growing species has often been advocated in order to give early shade, the intention being to remove these intermediate trees after the hardwood ones have grown to a fair size. This practise is not to be recommended, because the quick-growing trees overshadow those of slower growth and retard them, leading to the development of poor, misshapen specimens.

## The Selection of Trees

Four desirable qualities for trees for street planting are: symmetry, cleanliness, immunity from insects, and abundance of shade. It is well to use trees that are easily propagated, and they should be able to endure transplanting. In addition, they should be hardy and capable of withstanding the unfavorable conditions of city life, such as poor soil, heat, drought, smoke and dust. In choosing trees, those native to a locality should be given first choice, since trees adapted to local soil and climatic conditions have much more chance of growing under city conditions than do imported varieties. Of the native trees available, for important locations at least, selection should be confined to those trees which are known to have given good service under



FIGURE 1. RED OAKS

city conditions. However, a number of streets favorable for the purpose should be given over to experimental planting, in order that the city may fully understand and appreciate the possibilities of various kinds of trees.

Most trees are easily propagated from seed, which is not difficult to procure, and it will be found that for any city of fair size not only will a municipal nursery prove to be economical, but the results obtained with the trees will be much better than if they were purchased of planting size from distant nurseries. In the municipal nursery continuous attention can be given to pruning and training, and, with ordinary care, losses when the trees are transplanted to the streets should be practically negligible.

### Three Excellent Trees

The main structure of a city's tree system may be built upon but a few well-chosen varieties of trees. A choice of only three is sufficient, for it is doubtful if anything is gained by a greater variety. On important streets it is a good plan to continue one kind of tree from beginning to

end across the city. The red oak (Figure 1) ranks with the foremost of shade trees. It has all the good qualities of the other oaks and practically no faults. It is a large, oval, open-headed tree of relatively rapid growth, with large green leaves. It is such a handsome tree, requires such little care, and is generally so very satisfactory that it is a pity it has not been more universally used for street planting.

It is believed that but one tree equals the red oak for street purposes—the American elm (Figure 2): though this tree, being tall and spreading, differs radically from the red oak and is graceful rather than majestic, as is the latter.

A third very satisfactory tree is the Norway maple (Figure 3), which, on account of its good shape, its attractive green foliage during spring and summer, and its color in the autumn, has found much favor for street planting.

### Undesirable Trees

Objectionable features that should be given consideration in choosing trees may best be brought out by discussing two most

undesirable varieties.

The silver maple has probably been more used for street planting throughout the United States than any other tree, and yet it is one of the least desirable and should not be used where any other tree will grow. It is a surface rooter; its wood is brittle and easily broken by ordinary wind-storms, and the whole tree is subject to early decay. Its autumn foliage is unsightly. Of the 100,000 trees in the city of Washington, more than one-fifth are mature silver maples, trees that in another decade will have entirely disappeared from the streets. If the red oak, the American elm or the Norway maple had been used instead, not only would the past generation have received superior pleasure, but the benefits derived would be continued for generations to come.

Another undesirable tree is the Carolina poplar. It also is a surface rooter. It begins to lose its leaves early in summer and is completely defoliated early in the autumn. The wood is easily broken and the trees grow so rapidly, with long

branches and heavy tops, that practically every wind-storm causes an unreasonable amount of damage. The Carolina poplar is a vigorous tree and grows under most difficult conditions, but it should not be planted if any other tree can be made to meet requirements.

#### Care and Abuse of Trees

Trees on city streets require a great deal of special care and attention. First of all, to take the place of top-soil which is usually removed when streets are placed on grade, and to insure a feeding ground of the best quality possible, a hole about 6 by 3 feet and 3 feet deep should be dug and filled with rich soil. Water-tight pavements and buildings completely surround practically all street trees, with the exception of small areas adjacent to their trunks. It is remarkable that the trees live at all, and yet with good care they apparently flourish as well as do those growing under natural conditions. For the first year after placing the tree on the street, systematic cultivation should be carried out, the earth about



FIGURE 2. SPRAYING ELMS WITH ARSENIC OF LEAD



FIGURE 3. NORWAY MAPLES

the tree being kept loosened, and in very dry periods it should be watered.

To protect the tree and hold it upright while young, a tree box is necessary. A wooden one is satisfactory, and instead of having four sides, as is usual, but three should be used, thus saving one-fourth the cost. Boxes for mature trees as protection against draft animals are not needed in this day of motorized transportation. While the tree is young, it should be trained into a good shape by skillful pruning. After maturity, methodical trimming is required for the elimination of dead wood and such branches as would hang so low, particularly after rainstorms, as to interfere with pedestrians on the sidewalks or vehicles on the roadways.

Careful and persistent efforts are necessary at all times, if control of the many shade tree pests prevalent in cities is to be had. Disregard of this duty results in complete

defoliation, and after a few seasons in death, because trees hampered by unfavorable city conditions do not have the resistance to, and immunity from, insect enemies that forest trees have. If a city is equipped with adequate spraying and other outfits, insects and ordinary diseases can readily be controlled.

Generally, the practise of what is known



FIGURE 4. TRIMMED SYCAMORES





FIGURE 5. SYCAMORES THE SECOND SEASON AFTER SEVERE HEADING-BACK

as "heading back," illustrated in Figure 4, is to be condemned, the one possible exception being in the case of the sycamore. Figure 5 shows sycamores the second season after having been severely headed back. When work of this nature is carried out by competent persons and for well-founded reasons, satisfactory results may be had.

Often, on one excuse or another, man abuses and wantonly destroys much of the beauty of a city's tree system. In making house connections for gas, water and other utilities, laborers cut through the main roots of trees, instead of digging carefully around them. Linemen slash into the tops of trees, as shown by Figure 6, which illustrates the mutilation of what were handsome pin oaks. When trees interfere with overhead wires, the latter should be grouped into armored cables; or special "tree wire" should be used, which can be strung through the branches without injury to either the trees or the wires; or else the wires should be placed underground. There are also many other abuses: for instance, trees in front of soda fountains are killed by salt water drained from ice-cream cans, and those in front of garages by grease deposited on the ground about them.

## U. S. Department of Agriculture Information

The U. S. Department of Agriculture publishes for free distribution a great deal of accurate and valuable information about trees, the following being of particular importance:

*Farmers' Bulletin 1208*—"Trees for Town and City Streets"

Qualities necessary for street trees

Division of the United States into thirteen regions, with lists showing trees adapted to each region

Description of different trees

*Farmers' Bulletin 1209*—"Planting and Care of Street Trees"

Importance of shade trees

Public control of shade trees

Planning for trees on city streets

Spacing trees

Conditions for tree growth

Trees suitable for city streets

Culture of street trees

Care of mature trees

*Farmers' Bulletin 1123*—"Growing and Planting Hardwood Seedlings"

Seed collection, extraction and storage

Growing the seedlings

Transplanting

*Farmers' Bulletin 181*—"Pruning"

Purpose of pruning

Pruning implements



FIGURE 6. MUTILATED PIN OAKS

Pruning for specific purposes  
Application of pruning to specific plants

*Farmers' Bulletin* 1178—"Tree Surgery"

The danger of neglected wounds

The details of tree surgery

Guying

*Farmers' Bulletin* 1169—"Insects Injurious to Deciduous Shade Trees and Their Control"

The principles of shade tree insect control

The various methods used for the control of insects and disease

Spraying outfits and accessories

Insects arranged according to the manner of attack

*Farmers' Bulletin* 701—"The Bagworm, an Injurious Shade Tree Insect"

*Farmers' Bulletin* 708—"The Leopard Moth, a Dangerous Imported Insect Enemy of Shade Trees"

*Farmers' Bulletin* 845—"The Gypsy Moth and the Brown-Tail Moth and Their Control"

In these last three bulletins, Nos. 701, 708 and 845, more detailed information is given than in the general bulletin, No. 1169.

### Cost Data

In Figure 7 are set forth data pertaining to the trees of the city of Washington, picturing the growth of the tree system from its inception in 1872 up to date. Unfortunately, among the 105,889 street trees in the city there are many poor specimens (22,636 are silver maples), all of which will probably be removed during the next ten years. While few or no undesirables have been planted since 1900, the early use of such trees has placed an undue burden upon the city, in that they require a great deal of care and then have to be removed and replaced after an unreasonably short life. With a tree system that has been brought to a total of 100,000 trees after well-organized planting of well-chosen varieties for fifty years, no more than 1,000 replacements should be required during the fiftieth year, with but slight increases thereafter. Instead, in Washington, on account of the early choice of undesirable varieties, it has been common practise to remove more than 2,000 trees annually for some years past, and there will undoubtedly be

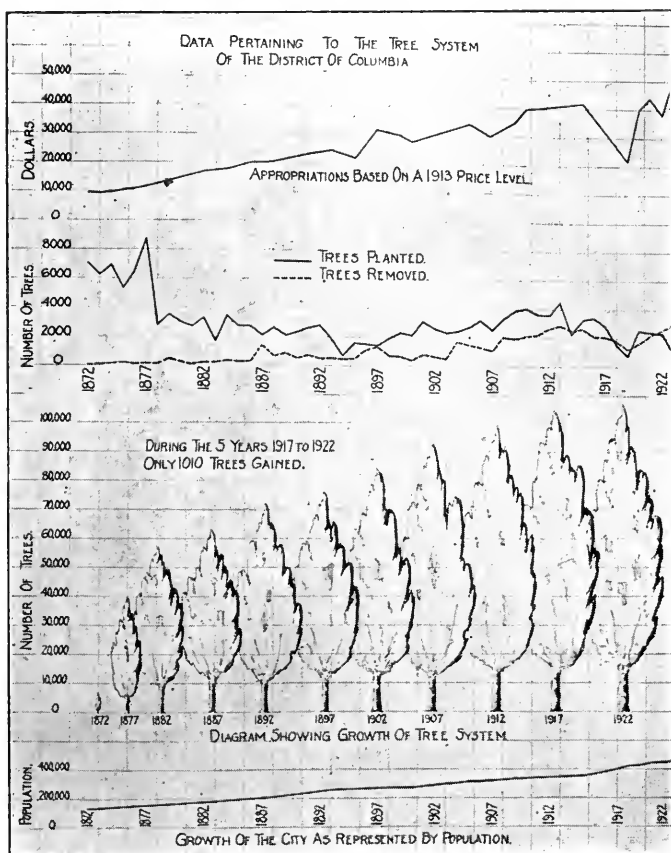


FIGURE 7. CHART OF TREE SYSTEM OF DISTRICT OF COLUMBIA

removed an average of 3,500 trees each year during the next ten years.

Assuming that a city has a system of 100,000 trees and that the removal of 1,000 and the planting of 4,000 (to cover replacements and to keep pace with the growth of the city) would be necessary in the fiftieth year, an appropriation of \$50,000 would be required, which, including allowances for depreciation and maintenance of equipment, would be expended about as follows.

Administration and overhead, locating trees on plats, transportation for superintendent, etc. ....	\$7,000
Planting seed and raising 4,000 trees to age fit for street @ 50 cents.....	2,000
Digging 4,000 tree holes and filling with rich soil @ \$3.75 .....	14,000
Lifting 4,000 trees and planting on street @ \$1.10 .....	4,400
4,000 tree boxes @ 90 cents.....	3,600
Placing 4,000 tree boxes @ 25 cents.....	1,000
Removal of 1,000 trees (varies from \$1 to \$20 each) .....	5,000
Trimming 20,000 trees @ 20 cents.....	4,000
Spraying, etc., 60,000 trees @ 10 cents.....	6,000
Cultivating, general care of tree spaces and tree boxes, and miscellaneous work.....	3,000
<b>Total .....</b>	<b>\$50,000</b>

# Catch-Basin Cleaning

## Experience of Various Cities with Hand Labor and Automotive Equipment

**A** VERY few years ago catch-basins were cleaned by hand. Two or three men with a wagon would empty the contents of the catch-basin on the pavement and the refuse would lie there, a putrid mass, until it became of the proper consistency to be hauled away. Various devices have been developed to do this work better.

In Newark, N. J., some basins are still being cleaned by the old method, but most of them by an Otterson Auto-Eductor, purchased two years ago. The basins are 6 feet in depth and 4 feet in diameter, and there are approximately 5,000 of them in the city. Covering a period of about one year, it was found that it cost about \$3.14 to clean by machine, as against \$5.02 by hand. This includes two men on the machine and also a driver, whereas in the hand gang there is a bottom man, a man in the basin, and two top men and the team. These costs also include 20 per cent depreciation on the machine, all supplies, oil, gasoline and all repairs, and in computing the cost of the hand-cleaning method nothing

has been charged off for equipment.

In St. Louis, an Eductor works at night in the down-town district. Hand cleaning costs from \$3 to \$5, while cleaning with the Eductor costs from \$1.50 to \$2 per basin.

In Chicago, there are 2,600 miles of main sewers ranging in sizes from 6 inches to 20 feet in diameter. There are about 130,000 catch-basins and 95,000 manholes. The task of keeping the sewerage system in service is rather large and is handled by dividing the city into seven districts. About five years ago it was realized that the cost of cleaning catch-basins was increasing at such a rate that something had to be done. There are now seven Eductors in use in Chicago, one for each district. The costs are averaged year in and year out, charging all the overhead that is coming to the machine in its district. The cost of the machine has been saved about every eleven months. Three of the machines are about to be replaced with new ones.

**ACKNOWLEDGMENT.**—From the discussion of this subject at the Third Annual Conference of the International Association of Street Sanitation Officials.

## The Water-Works of Penang, Straits Settlements

**A** CCORDING to Thomas W. Chilton, American Consul, Penang, Straits Settlements, that city is served by two government-owned and -operated water-works which have reservoirs on a hill overlooking the city of Georgetown, commonly called Penang. The water, which is of a very good quality, is distributed within, and in some instances slightly beyond, the city limits by modern water-mains and service pipes into the houses. The system of drain-

age and sanitary works is, however, with some exceptions, very primitive, receptacles being placed in separate toilets without sewer connections. These receptacles are emptied several times a day by government employees. Modern bathtubs are not in use. The bathing appliances consist of large earthen jars from which water is dipped by means of a small pail and poured over the bather. This system is in common use in the Far East.

## Road Costs in Edmonton, Alberta

**T**HE estimates which have been submitted by Engineer Haddow of Edmonton, Alberta, for carrying out some experimental paving with Fort McMurray tar sands are of interest. Dividing the three blocks which are to be paved into five sections and using a different kind of treatment for each, he estimates the following costs: untreated tar sands on clay foundations, \$1.87 per square yard; untreated tar

sands on gravel foundations, \$2.33; treated tar sand and rock mixture on clay foundation, \$1.63; treated tar sand and rock mixture on gravel foundation, \$2; bituminous penetration methods, \$1.72; standard asphalt concrete on 6-inch concrete base, \$3.70. The price of tar sands is the same as that paid by the city last year—\$5 per ton at Fort McMurray and \$5 per ton for freight.

# Costs and Types of Paving for Cities

Helpful Suggestions for City Officials and Taxpayers

By W. J. Emmons

Professor of Highway Engineering, Agricultural and Mechanical College of Texas

THERE are a number of factors, some of them interrelated, which must be taken into consideration in choosing a pavement. Offhand, first cost might easily be considered to take first rank, and it probably does between types which are otherwise of approximately equal merit. No one would, of course, advocate laying gravel in preference to sheet asphalt on the down-town section of Houston, Texas, merely because it is cheaper than asphalt, since everyone realizes that gravel could not withstand the traffic. On the other hand, if the conditions were changed and a street in a poorer residential section were to be made passable, sheet asphalt would generally be given scant consideration, not because it is not suitable, but because of its relatively high initial cost.

## Asphaltic Concrete

For business and high-class residential streets in Texas cities the types laid in considerable amount are Warrenite - Bitulithic, brick, Uvalde rock asphalt, asphaltic concrete and sheet asphalt. Concrete, a comparative newcomer in city work in the state, may be expected to increase its yardage in the future. Although these names carry definite meanings to all engineers, it may be well to describe each one briefly for the benefit of those who are not constantly in contact with paving matters.

Bitulithic is, strictly speaking, an asphaltic concrete directly analogous to ordinary portland cement concrete. It con-

tains coarse stone or gravel, sand, and asphalt to bind the mixture together, the idea being to so proportion the various sizes of aggregate that they will interlock and support each other to the greatest extent possible. Such a mixture possesses stability or resistance to displacement independently of the asphaltic binder, which further reinforces and waterproofs the pavement. Hot asphalt painted or squeegeed over the compressed surface and covered with

coarse sand or stone chips constituted a seal coat with which the original Bitulithic was finished. The wearing off of this seal coat which exposed stone in the paving mixture to the direct wear of the traffic was the principal shortcoming of this type. To overcome this weakness, a seal coat of hot-mixed sand and asphalt was adopted in place of the squeegee type, and it constitutes a vast improvement. When so laid, the pavement is called Warrenite - Bitulithic. Bitulithic was developed and patented by

## Best Service for Least Cost, the Criterion

The question of the selection of the type of pavement for a city street is one of considerable complication and one which has disturbed the equanimity of city councils since the first municipal improvement of this nature was inaugurated. Boiled down to its essence, the problem becomes one of finding the pavement which will, like other structures, give the best service for the least cost. Realizing this, the councilman and the property owner, faced for the first time with the necessity for choosing between the multitude of available types, throws up his hands and cries, "What is the best kind of pavement?" The answer, however, helps him little, because it is a fact that, while there may be several pavements which will all give approximately equal satisfaction under the conditions at hand, there absolutely is no best type applicable to all cases.

the Warren Brothers Company of Boston, Mass., but the original patents have now expired and anyone may lay a pavement mixture embodying the principles of proportioning contained therein. The use of a mixed seal coat blending with the coarser mixture is, however, still protected by patent. On January 1, 1921, fifteen cities of Texas possessed Bitulithic pavements for a total of over 191 miles, and many new contracts have been awarded since that date.

### Topeka Pavement

About 1909 a type was developed in Topeka, Kans., which, more or less modified, has had a wide use throughout the country. It is this pavement, properly called Topeka from its point of origin, which is generally specified under the name of asphaltic concrete. It is very different from Bitulithic, as it is composed mainly of fine sand with a comparatively small amount of stone chips of about  $\frac{1}{2}$ -inch maximum size. The mixture does not derive stability from the stone which it contains, but must depend upon a very carefully proportioned sand mixture and upon its asphaltic binder for success. Topeka is not suited to the heaviest traffic, but is a very satisfactory type for the less busy street.

### Sheet Asphalt

Sheet asphalt is a two-layer pavement. Upon the foundation a hot mixture of stone, sand and asphaltic cement (an asphaltic concrete) is first laid, and upon this is spread the wearing surface layer, which is composed of sand, a very fine dust and asphaltic cement. No stone is present in this latter, and great care must be exercised to so proportion the materials that a tough and dense mixture will result.

### Other Mixed-Type Asphaltic Pavements

Other asphaltic pavements of the mixed types are variations or modifications of these, and need not be discussed in detail.

Willite, as most frequently laid, is a sheet asphalt to which a small amount of a chemical has been added with the idea of imparting a greater degree of toughness to the asphalt. Amiesite is an asphaltic concrete, which after being used for a number of years in the East has made its appearance in Texas. It is a combination of stone and asphalt, without sand, which is generally mixed at a central plant and shipped to distant points to be laid cold.

Uvalde rock asphalt, nature's own paving material, as it is sometimes called, has been developed in the last dozen years. It is a limestone, containing, or largely made up of, the shell remains of marine organisms and impregnated with a hard asphalt. In fact, the asphalt is so hard that pavements laid with the material, just as it comes from the mine, would probably crumble and wear rapidly under traffic. In practise, therefore, a more fluid oil is added to render the pavement mixture more resilient. The oil is sometimes applied to the foundation and crushed rock asphalt spread and rolled into it. So constructed, the pavement is called cold-rolled rock asphalt.

The rock asphalt is more commonly finely crushed and the flux oil added to it in a heated condition for city work. Pavements thus laid have given excellent service to date in many cities of the state.

### Portland Cement Concrete

Concrete, also, has made gigantic strides



**MILITARY WALK, COLLEGE STATION, TEXAS, PAVED WITH ASPHALTIC PENETRATION MACADAM IN 1915**

This 6-inch pavement, which includes both crushed stone foundation and wearing surface, has had no maintenance with the exception of a thin application of asphalt and sand. It is subjected only to light traffic, about 100 vehicles a day, and 4,000 cadets

in the past decade. The intensive research of the Portland Cement Association and various highway departments has developed the importance of careful proportioning, curing, finishing, etc., with the result that construction of this type may now be undertaken with the assurance that a high-class pavement will result.

With the exception of concrete, a foundation must be constructed in connection with each of the so-called standard types. This may be 5 inches or 6 inches of concrete or an equivalent depth of compacted gravel or crushed stone. The former material seems to be the more popular, but whichever type of foundation is employed, it must be able to carry the load. An excellent surface on an inadequate foundation is a shameful spectacle and a clear waste of money.

### Comparison of Pavement Types

Assuming their materials to be first class and considering the average traffic they are to serve, most of these types are fairly comparable on a first cost basis. While costs at different times and in widely different locations are likely to be misleading, a tabulation of a few bids submitted within the past year in various sections of Texas is given below.

In the comparison of cost data it should be remembered that many factors enter into the formulation of a bid price. In the absence of competition prices soar; upon a small job overhead costs increase; and with local materials conveniently available, lower costs of the constituent aggregates of the pavement should react in favor of the city.

### Is Maintenance Guarantee Justified?

In many cases, the contractor is required,

### TYPICAL PRICES BID ON SIX TYPES OF PAVEMENT LAID IN TEXAS CITIES

Type of Surface	Type of Foundation	Bid Price per Sq. Yd.		Date of Bid	Place
Surface	Foundation	Surface	Foundation		
2" Asphaltic concrete .....	6" concrete	\$1.60	\$1.40	Oct. 16, 1922	Houston
2" Asphaltic concrete .....	5" concrete	1.30	1.40	Sept. 25, 1922	Bryan
2½" Sheet asphalt .....	6" concrete	1.60	2.10	July 12, 1923	Port Arthur
2½" Sheet asphalt .....	6" concrete	1.40	1.14	Jan. 23, 1923	Laredo
2" Warrenite-Bitulithic .....	6" concrete	1.70	1.32	Jan. 23, 1923	Laredo
2" Warrenite-Bitulithic .....	5" concrete	1.75	1.05	Oct. 17, 1922	Ballinger
2" Warrenite-Bitulithic .....	6" concrete	1.72	1.45	Oct. 16, 1922	Houston
6" Portland cement concrete .....	.....	2.32	....	Sept. 25, 1922	Bryan
6" Portland cement concrete (reinforced) .....	.....	2.75	....	Dec. 6, 1922	Kerens
2" Uvalde rock asphalt .....	5" concrete	1.68	1.18	Oct. 17, 1922	Ballinger
2" Uvalde rock asphalt .....	6" concrete	1.35	1.35	Jan. 23, 1923	Laredo
2" Uvalde rock asphalt .....	6" concrete	1.54	1.50	Oct. 16, 1922	Houston
3" Vertical fiber brick .....	5" concrete	1.85	1.08	Oct. 17, 1922	Ballinger
3" Vertical fiber brick .....	6" concrete	2.19	1.52	Oct. 16, 1922	Houston
3" Vertical fiber brick .....	6" concrete	1.96	1.14	Jan. 23, 1923	Laredo

### Investigate Local Resources

In these days of intensive street improvements with attendant high prices it behooves the city official to make use of every possible expedient to stretch available funds to the absolute limit consistent with approved practise. Every resource peculiar to his vicinity should be employed to the utmost and, while construction suited to the situation at hand is adopted, it should be borne in mind that certain types may be extravagantly uneconomical. In selecting pavements it is an excellent expedient for the city to look about and locate, if possible, local sources of material supply. A consideration of present freight rates makes the importance of such a find self-evident. The discovery of a gravel deposit may make concrete the logical selection for the city's pavements. A pit of fine sand, entirely unsuitable for concrete may be found satisfactory for any one of several asphaltic types. It may be suggested, too, that an asphaltic concrete upon a good gravel base is a type not to be despised for many of the lighter-traffic thoroughfares. Many cities are investigating their local resources to their marked advantage—it is a practise which should be generally adopted.

by the terms of his agreement with the city, to maintain his pavement in good condition for a period of five years following completion. The theory is that the contractor will do his utmost to guard against the necessity for repairing, and thus the city is protected against the danger of slipshod and careless work. In the days when comparatively little was known of paving materials and methods, and when skilled and reputable contractors were scarce, this plan of safeguarding the public's interests was

probably justified. At present, however, the inclusion of the maintenance clause is of doubtful expediency, except perhaps for a new and untried type of pavement.

An incongruous situation is developed when, as is usually the case, the contractor is asked to guarantee the success of work constructed in accordance with the engineer's rather strict specifications, and particularly so when rigid city inspection is also provided to regulate the many details of the work. This latter seems decidedly to be the more logical and better form of protection, but it certainly must be intelligently applied if satisfactory results are to be obtained. A properly laid pavement should require but little outlay for the period of the guarantee, and a pavement which does require extensive patching will almost certainly deteriorate at an accelerated rate immediately after the repairs are completed and will be a bad investment. Thus, why not abide by carefully drawn specifications enforced by good inspection and save in first cost the guarantee charge of 5 cents per square yard which the contractor must charge in self-protection?

#### Life of Pavements

The durability of the pavement type is a most important factor in its selection. Without exception, every one of the pavements at present in use in Texas has at some time or other failed to give the service expected of it, but generally such examples of short life are traceable to defects in construction, lack of maintenance, or other preventable cause. Occasionally, however, a type may clearly be incapable of withstanding the conditions to which it is subjected. Sheet asphalt and asphaltic concrete will deteriorate rapidly if not subjected to traffic, and will behave most satisfactorily when constantly exposed to the

action of rubber-tired vehicles. Wood block has repeatedly been found to give the best service under heavy traffic. Bituminous types, such as asphaltic concrete with stone particles in their surfaces unprotected by a bituminous mortar, will, unless the stone is extremely tough, and the traffic very light, show excessive wear after the first few years of use.

Placed under an environment to which they are suited, brick, sheet asphalt, Warrenite-Bitulithic, concrete, and the other types previously mentioned should give 10 to 25 years of economical service—if properly cared for.

Several pavement characteristics sometimes listed separately may be included under the term of general suitability. Ease of cleaning, low tractive resistance, non-slipperiness, and noiselessness may be grouped under this head. Possibly the vertical fiber brick with asphalt-filled joints is least easy to clean, and wood block and sheet asphalt may be regarded as the most slippery, especially when damp and slightly dirty. All the types offer very low resistance to loads hauled over them and are about of equal desirability upon this count. Wood block and the asphaltic types are the most quiet, and concrete is the most noisy.

Gravel for outlying sections is commonly laid, but for other situations justifying greater expenditures ordinary water-bound macadam treated periodically with a road oil may give satisfactory service over a considerable period. Bituminous macadam, better known perhaps as penetration macadam, should also receive attention for smaller towns or for lighter-traffic streets of larger ones. Less expensive than the high-class types generally considered as standard, it should nevertheless give long years of service under conditions to which it is adapted.

#### To Kill or To Save

The health cranks have demonstrated that it costs 76 cents to save a man from hookworm. The war-lords have demonstrated that it costs \$15,000 to kill a man in war. It thus appears, if the people would give the \$15,000 to the health cranks instead of to the war-lords, the said health cranks could with this sum save 19,736 lives.

—Bulletin, Indiana State Board of Health.

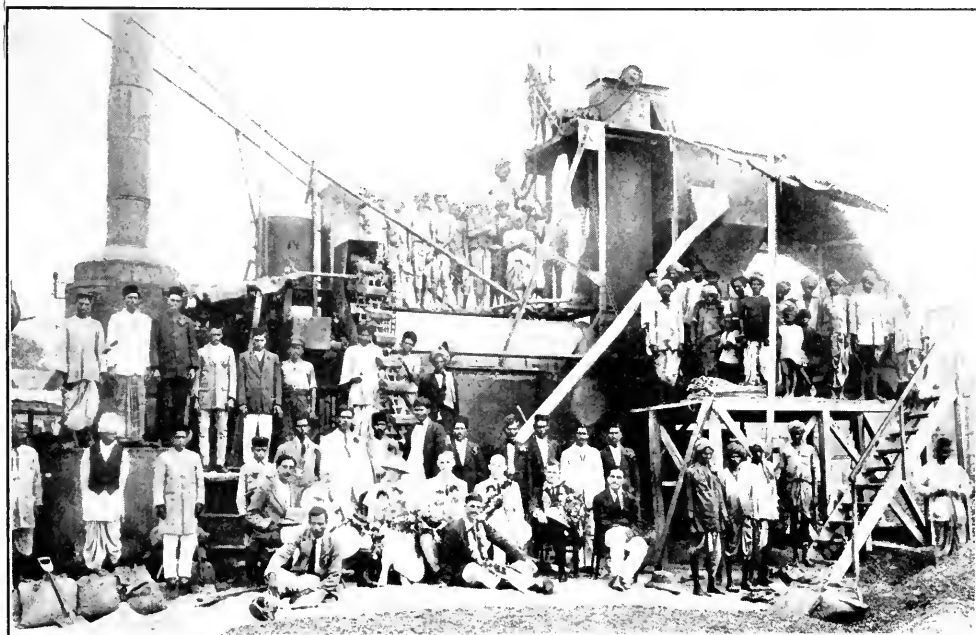


# Road-Building Equipment at Home and Abroad



A GRAY GIANT SCARIFIER-GRADER-ROLLER OWNED BY HENNEPIN COUNTY, MINN., IN OPERATION ON THE MINNETONKA BOULEVARD

This road is of graded gravel surfaced with a heavy asphaltic oil. The picture shows the action of the drum crushing the large cakes to insure satisfactory maintenance and resurfacing



A GROUP OF NATIVES AND ENGLISH AND AMERICAN ENGINEERS AT A CELEBRATION AT THE MUNICIPAL 800-YARD IROQUOIS ASPHALT PLANT, BOMBAY, INDIA

# Sanitary Problems of Growing Villages

By George C. Whipple

Professor of Sanitary Engineering, Harvard University

THE distinction between rural and urban life is sharp and well understood—one is individualistic, the other, communal. The village occupies an intermediate position between the farm and the city, and villages have a habit of growing into cities and towns. Unless village growth is guided, the result is almost sure to be an unlovely and insanitary conglomeration of streets and buildings. Many factors contribute to this result, but an important one is the desire of the people to have some of the benefits of urban life without giving up the individualism of rural life. Owners of land and buildings wish to develop their property in their own way, and they submit unwillingly to the ever widening application of police power and eminent domain. They fail to realize that as people live closer and closer together, each individual must give up more and more for the good of all and partake of and participate in public service. True it is that the state of change is the state of danger from boyhood to manhood, from villagehood to cityhood. True it is that the time to plan a city is when it is a village.

## Four Stages of Transition

In the matter of water-supply and sewerage there are four stages in the transition from rural to urban conditions, illustrated by the accompanying diagram. The first stage is that of primitive rural conditions where the water-supply is taken from a well, and human excreta is returned to the ground through one of the many forms of privy. Little water is used, the ground water is depressed but little, and if the privy is on the down-stream side of the ground-water flow, the danger of the well's being contaminated is relatively small. Privies, however, have their dangers, especially the fly transmission of disease germs.

The second is the advanced rural stage, in which water is pumped from the well to the house, plumbing is installed, and the waste water and the water-carried wastes are allowed to flow to a cesspool or a septic

tank. The fly danger is thus eliminated, but the use of larger amounts of water depresses the ground water, and the danger of the water's being contaminated is increased. If the soil is clayey, there may be an overflow of sewage on the surface of the ground.

The third stage is the primitive urban. There is a public water-supply, but no sewers. The danger here is from an overflow of sewage due to the greater use of water.

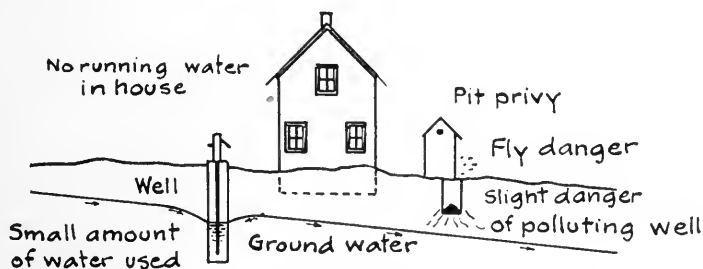
The fourth stage is the advanced urban, where there are public sewers as well as a public water-supply. This is the safest of all. Usually the fourth stage follows soon after the third.

There is a growing tendency towards the introduction of modern plumbing in the village and even on the farm. This means that local problems of sewage disposal are increasing in importance. The mere substitution of a septic tank for a cesspool does not always solve the problem. In a sandy or open soil either system may give no apparent nuisance, but both may pollute the ground water. In a clayey soil both may become nuisances and sources of danger. Before running water is installed in a village house, the owner should make sure that the waste water can be disposed of at all seasons of the year without nuisance to himself or his neighbor.

## Cesspools and Septic Tanks

The word cesspool means a pit into which waste water flows. If the pit has permeable sides, it is called a leaching cesspool; if water-tight, it is called a water-tight cesspool and of course has to be periodically emptied. Cesspools are generally covered. Usually the sewage remains in the cesspool a considerable time, so that the bacteria have ample opportunity to act upon the organic matter. Bacteria require oxygen, and fresh sewage from a house usually contains some of it. On reaching a cesspool the bacteria in the sewage seize this oxygen, and it very speedily disappears. This condition is called

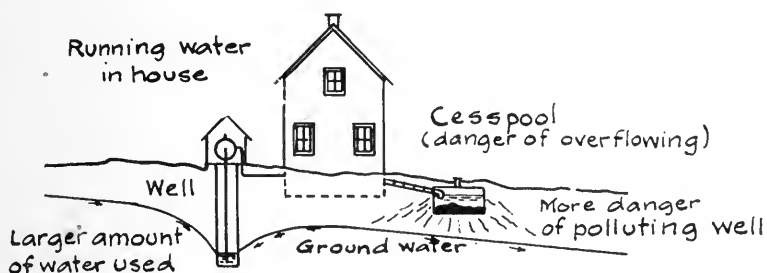
①  
PRIMITIVE  
RURAL



Water supply from well

Excreta deposited in Privy

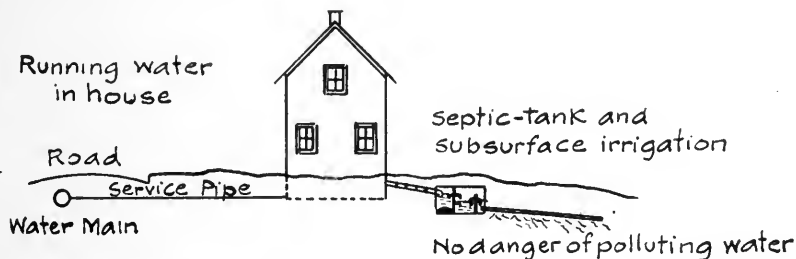
②  
ADVANCED  
RURAL



Water supply from well

Excreta carried by water to cesspool

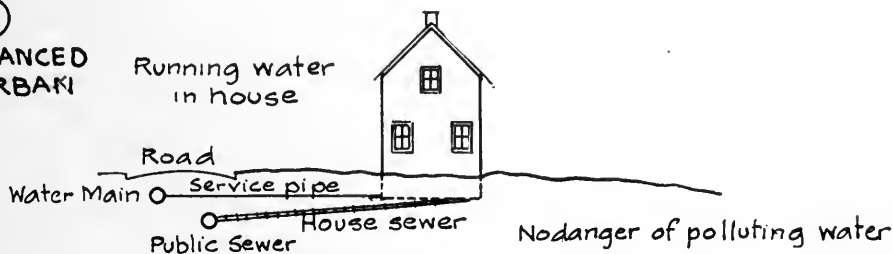
③  
PRIMITIVE  
URBAN



Public water supply

Excreta carried by water to septic tank

④  
ADVANCED  
URBAN



Public water supply

Public sewerage

## FOUR STAGES OF SANITATION

"anaerobic." Some bacteria can, under these anaerobic conditions, get the oxygen they need from the organic matter, that is, from the feces and urine, and even from the cellulose which constitutes the major part of paper. In doing so, they break up the organic matter so that some of the solids are changed to liquids or gases. This is called the septic process. It is not purification in the proper sense of the term, but it is a useful process. It reduces the accumulation of solids in cesspools, prevents the necessity of frequent cleanings, and makes it easier for the liquids to leach into the soil.

Septic tanks differ from cesspools in having water-tight sides and bottom, in having a definite outlet as well as an inlet, in having a more or less constant flow of liquid through the tank, and in being sometimes subdivided into compartments. The biological action is the same as in the cesspool; there is liquefaction and gasification of a part of the organic matter, a small amount of sediment gradually accumulating at the bottom, and a considerable amount of scum being lifted to the top by the entrained gases.

Much false praise has been given to the septic tank; and much false condemnation has been made of the old-fashioned cesspool. The water which enters either one has to go somewhere. If the soil is very porous, it may leach from the cesspool into the ground. It is foul when it leaves, becomes more or less purified in the soil, but may endanger a well if one happens to be near. If the soil is tight, a cesspool must be emptied occasionally or it will fill up and overflow; and, obviously, an overflowing cesspool is a sanitary menace. But in the case of a septic tank the water also has to go somewhere. Its effluent is also foul and dangerous. (The idea that in a septic tank the bacteria in some mysterious way "eat each other up" and that the effluent is "pure enough to drink" is entirely erroneous.) It may be distributed under the ground by a system of subsurface drains—a good way if the soil is porous—or it may be applied to some sort of filter. But unless adequate means are provided for disposing of the foul septic tank effluent, the whole situation may be much worse than that resulting from the use of the old-fashioned cesspool.

At a lake-side resort, where the lake water was used as a public water-supply,

I once examined about forty cottages. I found half a dozen expensively installed septic tank systems and every one was a menace to the lake. In some cases fecal matter and paper found no difficulty in passing through the tank and through the bed of broken stone into which the tank effluent discharged, into the lake itself. Of the thirty or more cesspools, two or three were overflowing because of neglect, but the rest were causing no nuisance whatever. In other words, the filtering power of the fine natural soil was greater than that of the coarse artificial stone bed. Septic tanks and cesspools both need to be watched. Both are useful if properly used and cared for.

### **Grease and Fecal Matter Should Be Kept Apart**

There is one fact about the use of septic tanks and cesspools that people generally do not know, namely, the great extent to which the presence of grease in sewage interferes with the septic process. Grease decomposes slowly under anaerobic conditions. It also coats the particles of fecal matter and cellulose and prevents their liquefaction. In cesspools it tends to choke the pores of the ground and prevent leaching. Grease and fats decompose with least nuisance where there is plenty of oxygen, while solid fecal matter and cellulose are liquefied best by the septic process. It follows from this that the two substances, grease and fecal matter, should be kept apart as far as this can practically be done. Where privies are used, sink wastes are generally put upon the open ground. This may be unsightly, but the danger to health is not very great.

When plumbing is introduced, the natural thing is for the plumbers to unite the waste pipes from all the fixtures as they do in cities. This brings together fats from the kitchen and fecal wastes from the water closets, which cause the difficulties I have referred to. It is true that a partial separation of grease can be made by the use of grease traps, but practically this has not proved to be very successful. With greasy matters kept out, cesspools can often be used for years without cleaning, while effluents from septic tanks can be dissipated through underground tile drains without clogging. There are no rules without exceptions, and my advice to separate

grease from fecal matter must be followed "according to the rule of reason," but I believe it to be sound.

**Typhoid Fever and Insect-borne Diseases  
Lingering in Small Communities**

Statistics of typhoid fever show that this disease is rapidly disappearing from large cities because of the general use of methods of water purification, better methods of protecting milk supplies and other activities. Typhoid fever is also disappearing from scattered farms. It is in the villages and smaller cities that the disease still lingers.

Insect-borne diseases are also likely to be prevalent in small communities and on the outskirts of large communities. In these areas where the works of man are encroaching on natural conditions, mosquitoes are likely to find breeding-places. Most cities have an insanitary fringe where new streets are being made, where ashes and refuse are being dumped, and where offensive industries, perhaps, are located.

These few examples show that some of the most important sanitary problems of the present day are to be found in villages growing into cities.

**Effect of Sanitation on the Death-Rate**

IN his annual report for the year ending December 31, 1922, George G. Earl, General Superintendent of the Sewerage and Water Board of New Orleans calls special attention to the accompanying table of Comparative Death Rates and Conditions. As, Mr. Earl well says, no one who will carefully study this tabulation can fail to recognize the essential relationship of proper sewerage, water and drainage conditions to the length and comfort of human life and the standing development of the community. It is estimated that if the conditions of 1900 still prevailed, there would have been nearly 11,000 deaths from New Orleans' 405,000 population in 1922, as against the actual total of less than 6,700.

Attention is also called in the report to the facts that the percentage of total population served by sewerage and water facilities, which increased until 1921, became constant in 1922, and decreased slightly in 1923; and that increased appropriations must be provided for the Sewerage and Water Board, or that some method must be devised to prevent the scattering of population, if New Orleans is not to slip backward in its sanitary status.

In Mr. Earl's opinion, the city can well afford paved streets, sub-surface drainage, and every needed sewerage and water facility on streets having an aver-

age population of say, 650 per mile, but such expenditures are impossible for scattered populations of 160 or less per mile of street.

COMPARATIVE DEATH RATES AND CONDITIONS.					
Date	Death Rates			Percentage of Total Deaths As Compared With Conditions of Decade 1890-1899, inclusive, Taken As 100%	Remarks
	Per 100,000		Per 1,000		
	From Malaria	Typhoid From	From All Causes		
Decade 1880-1889	156	21	28.6	105%	No adequate drainage, vaults, foul gutters, and unscreened cisterns everywhere; mosquitoes abundant.
Decade 1890-1899	134	39	27.2	100%	Same as above, with cess-pools increasing and overflowing often into gutters.
Decade 1900-1909	26	38	22.6	83%	From 1900, drainage commenced to improve conditions of soil saturation, and after 1906, sewers also acted to drain the soil and commenced to receive connections.
Decade 1910-1919	7	21	20.06	75%	By 1910, 29% of premises connected with sewers and 38% connected with water works system. Thereafter rapid further connections with both systems and further drainage improvements.
Year 1919	4	13	18.8	69%	Practically all well-built areas well drained, 93% of premises served by sewers, 96% of premises served by water.
Year 1920	1	7.5	17.75	65%	About 94% of premises served by sewers and 97 % by water.
Year 1921	2.7	9.0	16.5	61%	About 94% of premises served by sewers and 97 % by water.
Year 1922	3.95	10.12	16.5	61%	About 94% of premises served by sewers and 97 % by water.

# Unwarranted Abuse of Fire Hydrants

Hydrants Should Be Used Exclusively for Fire-Fighting

By John Wilson Toyne

Engineer, South Bend, Ind.

THE use of fire hydrants for other than the extinguishing of fires has been the outgrowth of the common use of the old town pump by everyone. The public fire hydrant is the general temporary water-service medium, and it is not surprising that the abuse of the fire hydrant has become universal, especially where the water utilities are municipally owned. So general is this practise that I have failed to find a single municipally owned plant where service is not rendered either voluntarily or otherwise through the fire hydrant. A short time ago, in a small city in northern Indiana, I was informed that no service was permitted from the fire hydrants, yet in less than an hour I counted the following using fire hydrants: a building contractor, a crew cleaning sewers, a teamster watering his team in a tub, and a tank wagon filling. In two of the cases Stillson wrenches were being used to operate the hydrant, with the usual results, and I noted a number of other hydrants which had experienced the same treatment.

In talking with a number of city officials about this practise, I have been surprised at the lack of thought given to the two most essential elements entering into the consideration of this abuse of one of the most necessary pieces of fire-fighting equipment, namely, cost and reliability. Thousands of dollars are appropriated for fire-fighting apparatus, including pumpers, hose wagons, deluge sets and aerials, in fact, everything that the ingenuity of man can contrive that will tend to assist in fighting fire, and surely municipal officials would be subject to severe criticism if they failed in their duty in this respect. At the same time, permission will be granted to almost anyone desiring water, for almost any purpose, to use a fire hydrant; notwithstanding the fact that the hydrant is not designed as a service

connection and that its use as such not only builds up exorbitant maintenance cost but reduces the available fire protection.

The latter statement is not merely assumption based on the law of averages, but is fact proved by actual conditions which have come under my observation. No doubt parallel cases have been within the experience of almost everyone connected with water utilities. Not long ago I noted that a fire alarm was answered in an addition where streets were badly cut up because of sewer construction. The hydrant that should have been used was tied up with a service line without even a union, and by the time the hose wagon had backed out to another hydrant the house had burned down. At a hydrant ordinarily used by the street sprinkler for filling purposes and on which the side cap was usually left open, a handful of small rock was discharged into the fire hose, plugging the nozzle and allowing a wood-shingle roof to catch fire from an adjacent fire, to gain considerable headway before the hydrant could be closed, the nozzle removed and another substituted. Small boys were severely criticised for throwing the rock into the hydrant, but, as I see it, the criticism was directed to the wrong place.

It would be difficult to estimate the cost in property damage and loss of life that has accrued from this practise, and that it is continuing is one of our disgraces. There are no arguments in favor of using hydrants for other than fire-fighting purposes, and the only question is how long will it take for the citizens of our communities to wake up to the fact that their lives and property are being placed under an unnecessary hazard, and compel us to stop it?

ACKNOWLEDGMENT.—From a paper read before the Annual Convention of the American Water Works Association.

## THE PROPER SPACING OF FIRE HYDRANTS

will be discussed by W. R. Conard, Consultant and Engineer, of Burlington, N. J., in an early issue of THE AMERICAN CITY.

# Municipal Music in Auckland, New Zealand

By Maughan Barnett

City Organist

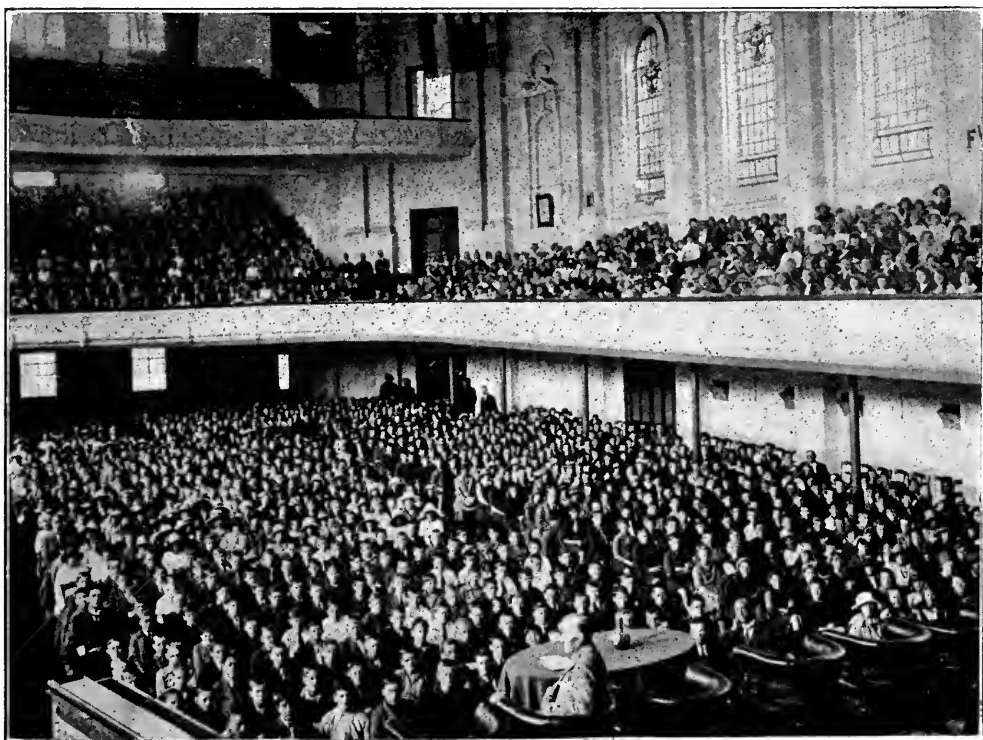
"IT is the duty of municipalities," according to a speaker at a recent conference in England, "to do all they can to refine and elevate the people, to provide opportunities of artistic and intelligent culture, and to give the people a larger and better life."

Good music is acknowledged to be of value to the community, and consequently the development of public taste comes within the scope of civic activity. The object of municipal music is to afford the people opportunities of hearing good music at charges within the reach of all. The musical education of a community is a slow process, and the ultimate success of any scheme having that object in view de-

pends very largely upon persistence of effort, regularity of performance and judicious program-making.

The establishment of municipal music in Auckland followed the erection of a fine Town Hall and the installation therein of an exceptionally artistic "Norman and Beard" organ, a gift to the city by Henry Brett, the proprietor of the *Auckland Star* and an enthusiast in music.

A city organist was appointed who gave his first recital in April, 1913. Four years later vocal solos were added to the programs, and in 1917 further and very popular variety was afforded as the result of the formation of a municipal choir, the first to be established in New Zealand. The



AUDIENCE AT AN ORGAN RECITAL FOR SCHOOL CHILDREN IN THE TOWN HALL, AUCKLAND, NEW ZEALAND



recitals are given on Saturday nights, which are reserved as far as possible by the City Council for municipal music. The season extends over ten months of the year. The charge for admission was originally one shilling, but this was reduced later to sixpence.

The audiences at the recitals have naturally included both the educated and the untrained in musical knowledge and appreciation. Consequently the selection of music for performance has been influenced by an endeavor to satisfy both sections and at the same time to keep within artistic limits. Public interest has increased steadily year after year, in spite of the abnormal conditions created by the war and its aftermath.

The total attendance during the first year of the recitals (1913-14) was 8,350, averaging 253 per recital. The figures for the present season, which has still a month to run, show a total attendance of 21,812 and an average of 727. The growing popularity of the recitals is further indicated by the fact that the last seven performances were attended by just under 8,000 people, a total only slightly less than that for the

33 recitals given during the initial year. The population of Auckland ten years ago was about 104,000 and is at present approximately 160,000.

In addition to the civic activities already mentioned, a series of recitals for children attending the primary schools in the city and suburbs are given each year. These were established in 1913 by the City Council, which no doubt had in view the fact that the school children of to-day are the citizens of to-morrow.

The Education Board and the headmasters of the schools undertake and carry out in admirable fashion all arrangements for the conveyance, seating and control of the children. The program for each recital includes a short address by the city organist, vocal and organ solos, the latter selected chiefly from the simpler works of the great masters, and British folk-songs sung by the children. An essay scheme is connected with these recitals, and prizes for the best papers are given by Mr. Brett and by Mr. S. Adams, a local professional musician. The average attendance of children at these recitals is about 2,000, which opens a wide field of musical influence in the homes.

## Demonstrating the Possibilities of a Community Dental Clinic

By R. B. Stone, D.D.S.

Director, Community Dental Clinic, Los Angeles, Calif.

**P**UBLIC dental clinics are just as necessary for the physical welfare of humanity as are hospitals. Dental disorders are more prevalent than any other form of human ailment, and their ill effects, not only on the comfort of the individual but on the general health of the body, are attracting increasing recognition. There is also evident in the dental profession a growing idealism—a desire not merely to make a living, but to render a fundamental community service.

In order that the possibilities of cooperative dental service may be given public demonstration, the writer has been able to enlist the aid of some influential men and women of Los Angeles in financing a Com-

munity Dental Clinic. The building, of which an exterior and an interior view are shown in the accompanying photographs, was opened on March 9. At first, we confined ourselves to such prophylactic, X-ray, and extraction work as could be handled with ease, but the demand grew to such an extent that we had to expand and do necessary reparative work, such as amalgam and porcelain fillings and small repair work.

The attendance of patients has increased each month, as follows: March, 191; April, 242; May, 297; June, 316; July, 398. Fully 90 per cent of the patients came to us for regular dental services, and the majority were able to pay the fees asked by the clinic.

During this time we have handled a small number of charity cases, sent to us by schools, churches and charity departments. Aside from these, the minimum fee of one dollar for prophylactic work, extraction and X-ray diagnosis is strictly adhered to. The majority of the larger work has been distributed to various dentists throughout the city.

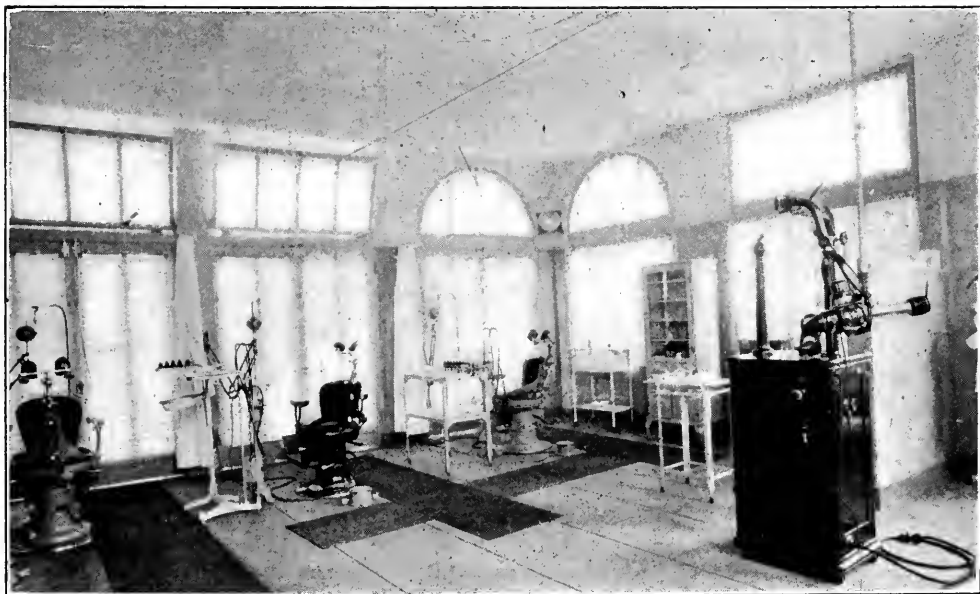
Our educational program has been of very great help to most of the patients. We have distributed some 6,000 pieces of literature, besides large quantities of tooth paste and mouth washes. We have six very good dental films, which we are showing free of charge to the public every Tuesday and Thursday evening.

Only graduated and licensed doctors and registered nurses are employed at the clinic. A fair salary is paid to the employees, but the director has been donating his services for the good of the cause. The clinic is not yet self-supporting, but it is our hope that there will be a favorable balance by the end of the next quarter.



LOS ANGELES COMMUNITY DENTAL CLINIC BUILDING

To meet the increasing demands, we are planning to add six more chairs to the present clinic, making ten in all. Then to meet further needs we hope to increase the number of clinics, in the belief that several small clinics in different parts of the city will be more beneficial than one large clinic. At some future time, when we have fully demonstrated the worthiness of our work, we hope to induce the city government to appoint a Community Dental Service Commission to take over the clinics and operate them as city or county institutions.



PART OF THE EQUIPMENT OF THE LOS ANGELES COMMUNITY DENTAL CLINIC

## Chamber of Commerce Activities in Public Affairs

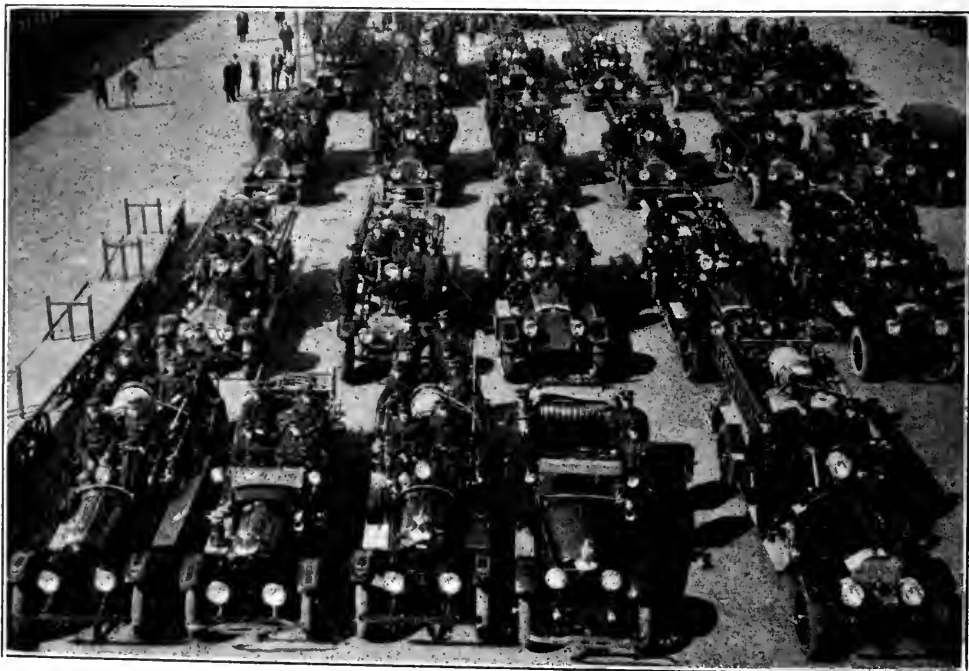
### *Oklahoma City's Progress in Fire Fighting*

OKLAHOMA CITY, OKLA.—A few years ago the Oklahoma City Chamber of Commerce came to a realization of the fact that the safety of the city and its future growth were imperiled by an inadequate water-supply and a poorly equipped fire-fighting force. Support was accordingly given to the necessary bond issues for enlarging and modernizing both of these essential arms for fire fighting. During the present year the Chamber's Fire Prevention Committee has made a thorough examination and inspection both of the modernized water-works system and of the Fire Department. The committee has been much impressed by the achievements of the city officials having the work in charge, notable among which has been the completion of

the work at a cost considerably less than the estimates on which the bond issues were based.

The accompanying photographs show some of our present fire-fighting equipment, and also the Fire Department Band. Not the least important asset of any fire-fighting force, we believe, is the good fellowship and morale which such a band as this exemplifies. Indeed our Fire Prevention Committee made special mention, in its report, of the fine spirit of harmony and loyalty existing between Commissioner of Public Safety Bob Parman, Chief George B. Goff, and the personnel of the force, and commented also on the alertness of the men everywhere noticeable.

Chief Goff, by the way, was appointed to his present position on June 1, 1921, when only 28 years of age. He had been on the



PROTECTION ON PARADE

Part of the fire-fighting equipment of Oklahoma City



OKLAHOMA CITY FIRE DEPARTMENT BAND

force for some years and had been a captain since 1917. Following his appointment as chief, Mr. Goff attended the drill school and college for fire fighters in New York City. More recently he has himself helped to train men from other departments, having worked out the course of instruction for a school for motor engineers from the fire departments of the various cities of Oklahoma, held in Oklahoma City in June last in connection with the State Firemen's Convention.

The growth of Oklahoma City and of its Fire Department are indicated by the fact that the city's first fire-fighting force was a volunteer department organized in 1889, the apparatus consisting of one dilapidated wagon. In 1892 the first paid department was organized. In place of the present Gamewell alarm system, there was a 65-foot tower with a watchman stationed at the top to look out for smoke. In place of the telephone, several shots from a revolver were the usual fire signal. The equipment of the first paid department consisted of one hose reel and a chemical engine. Contrast this with our present equipment as shown in the picture, "Protection on Parade."

In Oklahoma City the schoolboys of the community, instead of being excluded, are

always welcome at any of the fire stations. It is always "Boys' Week" in the Oklahoma City Fire Department. This helps to educate the boys in fire prevention and also has a good effect on the conduct of the members of the force.

At the present time the Chamber of Commerce has a committee working with the City Commissioners on the revision of our building code, based substantially on the code recommended by the National Board of Fire Underwriters. We enjoy the very finest cooperation between the Chamber of Commerce, the public generally and the Fire Department.

ED. OVERHOLSER,  
President-Manager, Oklahoma City Chamber  
of Commerce.

### *A Syndicate News Service for Chambers of Commerce*

Arrangements have been effected for transferring to the publishers of THE AMERICAN CITY the news service started a few months ago by the Better Times Syndicate. The new arrangement will make available for commercial and civic organizations a service which will save much time for the busy secretary and enable him to increase the interest of his members in the organization's bulletin. Full details may be had from The American City Syndicate Service, 443 Fourth Avenue, New York.

## A "Know Your City" Contest

NEWPORT NEWS, VA.—With the cooperation of the Superintendent of Schools, the Newport News Chamber of Commerce recently offered prizes for the best six answers from public school pupils to a series of twenty-eight questions on the history, geography, government, transportation facilities, educational resources and other commercial and civic conditions of the city.

The interest created by this contest was very great and resulted in the turning in of some 2,700 answers by the school children of the city. It also resulted in swamping the local Post Office, the Customs House, the Chamber of Commerce and the teaching force of the city for several days with requests for information. The greatest difficulty experienced was in sifting out the best answers. A committee of teachers worked on this for five or six days, after which a specially-appointed committee of judges selected from the seventeen correct answers the six prize-winning ones. The contest was worth the effort, however, for the children and the adults learned much about their city that they never knew before.

GODFREY L. SMITH,

President, Newport News Chamber of Commerce.

## Salaries of Policemen and Firemen

NEWARK, N. J.—A popular referendum having been proposed by advocates of an increase of \$500 in the annual salaries of members of the Newark police and fire departments, the Chamber of Commerce has submitted to the City Commissioners a report embodying the present salary schedules of policemen and firemen in other large cities. Accompanying this tabulation is a resolution adopted by the Board of Directors of the Chamber, in which the referendum method of determining salary increases is strongly opposed. The resolution states, in part:

"That the Board of Directors regards the method of determining salary standards for special bodies of city employees by referendum as ill-advised and unjust, alike to other employees and to the taxpayer, and maintains that such salary standards should be determined rather by the City Commissioners, the body of responsible officials elected for that purpose by the voters."

E. W. WOLLMUTH,

Executive Secretary, Newark Chamber of Commerce.

## Policemen's Salaries

SALARIES PAID TO POLICEMEN, AND NUMBER OF MEN IN DEPARTMENT\*

City (ranking based on maximum salaries)	Maximum	Minimum	No. of Men in Dept.
New York.....	\$2,280.00	\$1,769.00	11,249
Detroit.....	2,160.00	1,500.00	1,657
San Francisco.....	2,064.00	2,064.00	1,001
Minneapolis.....	2,040.00	1,740.00	403
Los Angeles.....	2,040.00	1,680.00	
Cleveland.....	2,004.00	1,700.00	1,173
Newark.....	2,000.00	1,800.00	948
Chicago.....	2,000.00	1,640.00	6,180
Akron.....	1,980.00	1,800.00	177
Oakland.....	1,980.00	1,800.00	
Toronto, Can.....	1,950.00	1,450.00	826
Providence.....	1,916.25	1,642.50	495
Washington.....	1,900.00	1,700.00	1,029
Milwaukee.....	1,860.00	1,740.00	743
Seattle.....	1,860.00	1,620.00	532
Philadelphia.....	1,825.00	.....	4,995
Portland, Ore.....	1,860.00	1,560.00	373
Indianapolis.....	1,800.00	1,733.76	531
Toledo.....	1,800.00	1,500.00	
Buffalo.....	1,800.00	1,500.00	1,079
Boston.....	1,800.00	1,400.00	1,950
St. Louis.....	1,740.00	1,380.00	1,796
Denver.....	1,620.00	1,440.00	380
Atlanta.....	1,560.00	1,380.00	373
Baltimore.....	1,560.00	1,300.00	1,495
Cincinnati.....	1,500.00	1,300.00	
New Orleans.....	1,500.00	1,200.00	621
Louisville.....	1,460.00	1,460.00	365

\* This table of comparative salaries was compiled by the Chamber of Commerce of Newark from information furnished by the Chambers of Commerce of the cities included in the table.

## Firemen's Salaries

SALARIES PAID TO FIREMEN, AND NUMBER OF MEN IN DEPARTMENT\*

City (ranking based on maximum salaries)	Maximum	Minimum	No. of Men in Dept.
New York.....	\$2,280.00	\$1,769.00	4,672
Detroit.....	2,160.00	1,840.00	1,265
San Francisco.....	2,040.00	1,800.00	1,100
Minneapolis.....	2,040.00	1,740.00	535
Los Angeles.....	2,040.00	1,680.00	
Cleveland.....	2,004.00	1,700.00	1,027
Newark.....	2,000.00	1,800.00	748
Jersey City.....	2,000.00	1,700.00	
Chicago.....	2,000.00	1,640.00	2,280
Akron.....	1,980.00	1,800.00	160
Oakland.....	1,980.00	1,800.00	341
Providence.....	1,916.25	1,642.50	325
Milwaukee.....	1,860.00	1,740.00	694
Seattle.....	1,860.00	1,620.00	625
Portland, Ore.....	1,860.00	1,560.00	
Philadelphia.....	1,825.00	.....	1,805
Toronto, Can.....	1,812.00	1,452.00	648
Indianapolis.....	1,800.00	1,733.76	608
Buffalo.....	1,800.00	1,560.00	920
Toledo.....	1,800.00	1,500.00	
Rochester.....	1,800.00	1,500.00	
Boston.....	1,800.00	1,500.00	1,200
Pittsburgh.....	1,794.00	1,620.00	
Columbus.....	1,680.00	1,530.00	
St. Louis.....	1,680.00	1,380.00	937
St. Paul.....	1,680.00	.....	
Washington.....	1,660.00	1,460.00	691
Kansas City.....	1,620.00	1,560.00	412
Denver.....	1,620.00	1,440.00	320
Atlanta.....	1,560.00	1,380.00	285
Baltimore.....	1,500.00	1,500.00	1,118
Cincinnati.....	1,500.00	1,300.00	
New Orleans.....	1,500.00	1,200.00	660
Louisville.....	1,460.00	1,460.00	330

\* This table of comparative salaries, with the exception of the figures for Oakland, was taken from a compilation made May 1, 1923, by the Chamber of Commerce of the city of Washington, D. C.

# Forward Steps in Municipal Affairs

## Progress in Smoke Prevention

EAST CLEVELAND, OHIO.—The lessons learned by East Cleveland over a period of nearly twenty years in fighting the smoke nuisance may be of value to other cities.

Back in March, 1904, the use of bituminous coal as fuel for furnaces had resulted in the emission of smoke to such an extent that the smoke was declared a public nuisance and an ordinance aiming to eliminate the nuisance was passed. Subsequent ordinances, repealing the previous ones, and based on practical experience during the intervening years, were passed in June, 1912, December, 1920, and October, 1922.

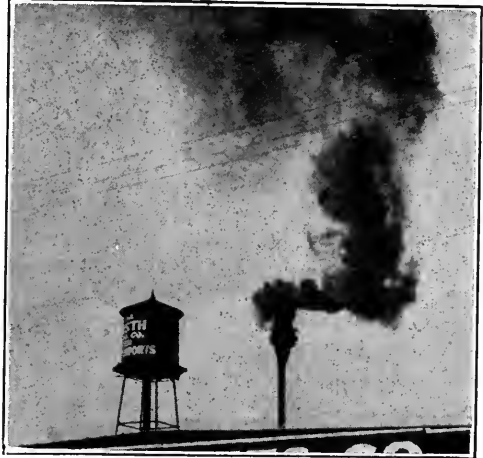
The earlier ordinances were found lacking in effectiveness because of not being specific in defining the grade of density of smoke. No mention was made of allowable equipment, nor were there proper provisions for inspection of plans and specifications of plants about to be installed or reconstructed, whereby smoke could be controlled at its source.

In the early part of last winter, the coal situation made the securing of smokeless fuel almost impossible. The type of equipment required under our present regulations gave almost no difficulty, even though using the very inferior fuel which was on the market. Older installations were constantly in violation of the smoke ordinance.

In general, the approved type of installation gives satisfactory results with nearly any fuel, while other types of equipment require smokeless fuel to comply with the smoke ordinance.

Since September, 1920 (up to August 11, 1923), the Smoke Inspection and Abatement Department of East Cleveland has issued 104 permits, representing equipment costing \$437,919. During the same period 138 violations of the smoke ordinance have been filed. In eight cases arrests were made and fines totaling \$550, besides the costs, were imposed.

The smoke abatement work in East Cleveland is directed by the City Manager and a Smoke Inspector (who is also Build-



ONE OF THE PICTURES USED IN EAST CLEVELAND'S SMOKE PREVENTION CAMPAIGN

## NOTICE

They are violating the anti-smoke ordinance in Chicago, but they will think better of it if all the other judges follow the example of Judge Adams. One of the men brought before him offered as an excuse that "smokeless coal costs too much." The Chicago Tribune quotes the judge's reply: "We'll make it so it will be far cheaper for you to burn smokeless coal. Pay the clerk \$100 and \$7.75 costs."

Commenting on the incident, the Tribune says:

Use of smokeless coal, or, better, complete combustion of soft coal, including most of what now is wasted in smoke, is, in reality, one of the greatest economies which could be undertaken. Soot is wasted fuel. Worse, it is a municipal liability, costing millions annually for laundry and other cleaning, rendering the city unattractive and impairing health.

Competent engineers who have made a study of coal firing are agreed on two points—first, that the expense of installing smoke consuming devices is not large, and second, the saving of fuel in consequence of installing them is considerable. Why, then, do owners of buildings and manufacturers violate an ordinance which is so manifestly in the public interest.

Smoke-making is fuel-wasting, poisons the air, destroys property and spreads disease and discomfort.

It is the intention of this City to show by rigidly enforcing the present smoke ordinance that SMOKE HAS NO DEFENSE. Are you prepared for this coming winter?

**JOHN A. COWING,  
SMOKE INSPECTOR  
FOR THE  
CITY OF EAST CLEVELAND**

**NOTICE MAILED TO OWNERS OF APARTMENT  
HOUSES AND BUSINESS BUILDINGS**

ing Inspector), and with the advisory aid of a Smoke Abatement Commission of three citizens. The commission has the right to employ a consulting mechanical engineer experienced in smoke prevention work in steam power and heating plants. A copy of the latest ordinance (No. 1639) will be sent to any reader of THE AMERICAN CITY on application.

JOHN A. COWING,  
Smoke Inspector.

### ***Bethlehem's Hill-to-Hill Bridge***

BETHLEHEM, PA.—The Lehigh River, separating the former boroughs of Bethlehem and South Bethlehem, now parts of the city of Bethlehem, has been spanned for about a hundred years by an old covered bridge. This structure has been partly rebuilt from time to time because of the destruction of portions of it by freshets.

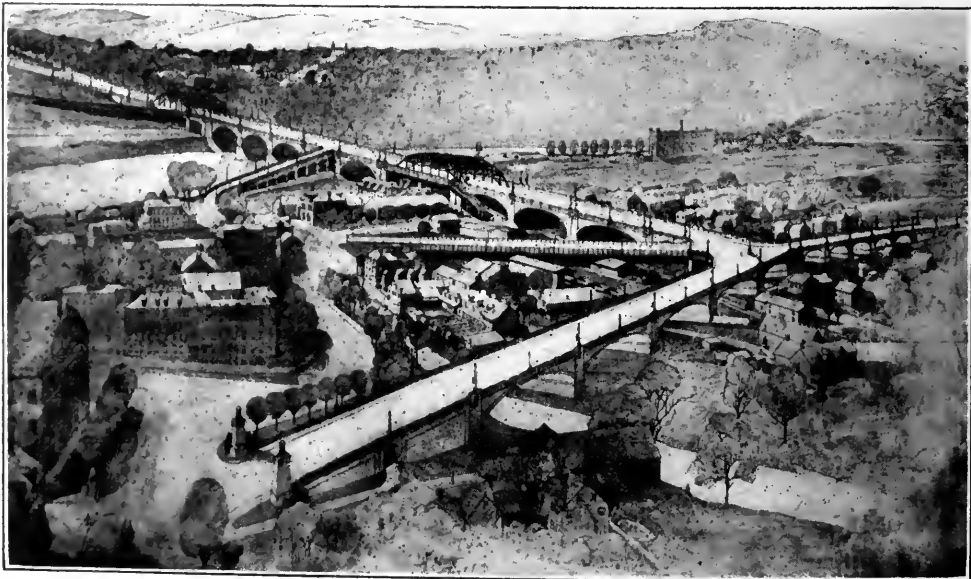
In 1912 a committee of citizens, known as the Joint Bridge Commission, was formed to consider the possibility of securing a new bridge which would not only provide safe and adequate facilities for crossing the river, but would also eliminate three dangerous grade crossings over railroads. The committee found the railroads willing to contribute towards the cost of the proposed hill-to-hill bridge, as this was cheaper than depressing or raising the tracks. The two boroughs and the transit company also agreed to contribute towards

the fund, but it became evident that to secure the kind of structure desired an appeal for public contributions would be necessary.

Accordingly, in October, 1916, the "Bridge Fund Campaign" was inaugurated. In the drive for funds two majors were appointed, one for each side of the river. The majors appointed captains who had charge of teams of workers numbering from fifteen to twenty each. The city had been divided into districts, and the workers were given lists of people they were to canvass for subscriptions. No amount was too small; for example, we have one subscription from 1,500 school children who gave 1 cent each. Meetings were held every day at lunch time in one of the hotels, where reports were received from teams. We always had some live speaker on hand to inject enthusiasm into the crowd. We also sang popular songs, the wording of which was changed to suit the occasion.

In this campaign contributions of over \$439,000 were secured from the local industries, the business men and the citizens generally. This amount, added to the pledges of the two boroughs, two counties, four railroads, transit company and six banks, brought the total fund up to \$1,196,849.

Early in 1917 we appointed a bridge engineer, and work was started on preparing



ARCHITECT'S DRAWING OF HILL-TO-HILL BRIDGE, NOW NEARING COMPLETION



detailed working drawings. Then came the entry of the United States into the war, and the construction work had to be postponed. In order to help out as much as possible, our funds were invested in Liberty Bonds.

Since it was evident that the style of bridge desired could not be built for the money available, the Public Service Commission of the Commonwealth of Pennsylvania allocated by order the cost of a modern structure sufficient to meet the traffic demands placed upon it. This brought the fund up to \$2,315,000. Early in 1920 we asked for bids, but on account of the high cost of material and labor the building of the bridge had to be postponed. Bids were called for again in 1921, and on July 17 of that year the contract was awarded to Rodgers & Hagerty, Inc., of New York, in accordance with their bid of \$2,568,000. The difference between the contract price and the amount previously allocated was taken care of by a new allocation divided between the parties at interest. The cement is being supplied by the Pennsylvania Cement Company and the Lehigh Portland Cement Company. The bridge will be opened early in 1924. It is called Hill-to-Hill Bridge from the fact that it begins on a hill on the south side and ends on a hill on the north side of the river, spanning four railroads, the Lehigh River, the canal of the Lehigh Coal and Navigation Company, and the Monocacy Creek.

A. GEORGE SHOFFNER,  
Secretary, Bethlehem's Bridge Commission.

### **Coffee Wagon for Fire-Fighters in San Francisco**

SAN FRANCISCO, CALIF.—The San Francisco Fire Department's new coffee wagon had its initial tryout at a fire recently, when 120 gallons of coffee were consumed, and the innovation was found to be a great success.

After the fire had been burning for an hour, in a driving wind and rain, the Fire Chief sent in a call for the coffee wagon



**THE SAN FRANCISCO FIRE DEPARTMENT'S COFFEE WAGON**  
The truck is supported on four wooden pyramids when parked in the engine-house

to the down-town fire house where it had been placed. When the call was received, a hoseman at the engine house immediately filled the urns and started the heaters, and then drove the wagon to the fire. A sheltered spot was found in the vicinity and the coffee was soon served.

The wagon is so constructed that one of the sides can be opened up, one half being raised to form a sort of roof and the other half lowered to make a table, on which the cups are placed. When in use out of doors, the urns are heated by means of acetylene carried in an ordinary headlight acetylene tank, and a gas connection is provided for heating when the equipment is used in the engine house.

THOMAS R. MURPHY,  
Chief, San Francisco Fire Department.

### **Chief of Police and Newspaper Cooperate**

SOUTH BEND, IND.—To bring about a better understanding between the Police Department and the public, and to promote voluntary rather than involuntary obedience to traffic regulations, the *South Bend Tribune* recently invited the Chief of Police of South Bend to prepare a series of articles on "Vehicles, Drivers and Traffic." The publication of these articles, 29 in number, was completed in the issue of August 29.

In the opening article Chief Lane mentioned, as outstanding causes of violation of ordinances, ignorance, thoughtlessness and lack of proper consideration of the rights of others. The articles were devoted, therefore, partly to explaining and clari-

fying the traffic laws, and partly to appeals for more thoughtful and unselfish observance of them. The accompanying reproduction of one of the articles of the series will show their general style and the form in which they were published.

Chief Lane states that these articles appear to have had a good effect, as a number of persons have spoken to him about them and indicated that the information was of value.

F. A. MILLER,  
Editor, *South Bend Tribune*.

## VEHICLES, DRIVERS AND TRAFFIC.

BY LAURENCE J. LANE.  
Chief of South Bend Police.

Many persons who drive automobiles do not seem to understand who has the right-of-way when two cars approach a city street or a road intersection in the country. The Indiana law gives preference to the vehicle approaching from your right. This means that if two vehicles approach a street or road intersection so that they would meet if not stopped the driver of the car approaching from your right has the privilege of crossing ahead of you and it is your duty to slacken your speed so the other driver can safely pass.

Observation shows that drivers will often speed up to cross first when they see a car coming from their right. This is not courteous, it is not contemplated by the law and it is very dangerous. If the other driver should speed up at the same time, realizing he had the right-of-way,

both might meet and cause serious damage perhaps injury. The surest and safest way is to decrease your speed and allow the other car to pass in front of you. The spirit of the law will be satisfied and the possibility of accident minimized.

Here again is a chance to apply the Golden Rule and to show whether you are created of the stuff that breeds accommodation. In vehicle driving accommodation is a big factor. If we could have more of it there would be better feeling and less accidents and the police could devote more attention to other things. And we could have a more accommodating spirit if people were more thoughtful. Thoughtlessness is one of the great factors in law violation. If people would pause for consideration they would have more respect for laws, especially those governing traffic.

ONE OF THE SERIES FROM THE SOUTH BEND TRIBUNE

## An Interesting Airplane View of the Intersection of Two Avenues in Richmond, Va.



Official photograph, U. S. Army Air Service

CIRCLE ON MONUMENT AVENUE, RICHMOND, WITH STATUE OF ROBERT E. LEE

# The Mayor's Job

Some Elements That Make It a Difficult One—Some Principles of Administration That Are Essential to Success

**B**ACK of the building of roads and bridges, the operation of water and sewerage systems, the laying out of parks and playgrounds, lie the constructive thought and purpose of responsible officials. All the successful physical undertakings of a municipality must start from a human idea and be supported by human will, energy, and mental and moral integrity. The intricacies of city finance are necessarily involved in all these accomplishments, and in this as in all other fields of city administration the individual must be dealt with, must be relied upon, if the desired results are to be achieved.

With the thought in mind of the problems caused by the human element, **THE AMERICAN CITY** asked a number of mayors the following questions:

What is the greatest difficulty that you have encountered in giving your city an efficient administration? Has it been overcome? If so, how did you do it?

You know and we know that it is not easy to secure:

- Enthusiastic and conscientious work
- Elimination of waste of time and materials
- Clean, honest administration of departments
- Provision for the future growth of the city

Have you met with opposition from citizens and circumstances in carrying out such a program? What has experience taught you that other mayors may profit by?

Replies from some of the larger cities are given in this number of **THE AMERICAN CITY**. The experience of some of the mayors of cities of less than 25,000 population will be given in a subsequent issue.

## Springfield, Mass.

We do, of course, meet with difficulties in giving what we consider an efficient administration. However, this must be considered as part of the day's work. Most problems are solved by public opinion. Of course the press is a great factor in molding opinion.

We made an attempt to curtail the mounting cost of education in our city. It costs Springfield, a city of 140,000 (estimated), about \$3,000,000 per year, or about 50 per cent of total costs of running all the city departments. Only two cities in the whole United States were paying more per capita than Springfield.

An attempt was made to stop the annual raises allowed the teaching force. A most

strenuous fight ensued, in which the school committee voted to close ten kindergartens and other schools and use the money to pay these increased salaries. This resulted in a lawsuit before the Supreme Court, which decided against the city and in favor of the school committee. In this fight the press supported the school committee.

Every few years an attempt is made to change the city charter. A year ago a strong fight was made here to change to what is known as "Plan B, City Charter." Although the press was for this change, it was defeated by vote of the people at the last election, the city officials making the fight to retain the old charter, under which there had never been a breath of corruption or maladministration.

Like all rapidly growing cities, Springfield, which has increased 45 per cent in the last decade, has its problems of street widenings, the increasing traffic problems making necessary most of these improvements, some of which are very costly. There have been many differences of opinion about the necessity of some of these. They have been settled in at least two cases by elections of aldermen or councilmen pledged to vote for certain propositions.

We have created a planning board during my administration which, I believe, is one of our most important acts. This board has put through a zoning ordinance which has had already a far-reaching effect in preventing the creation of eyesores, and in preventing the introduction of garages, stores, etc., in residential districts. This ordinance will make provision for the orderly future growth of our city.

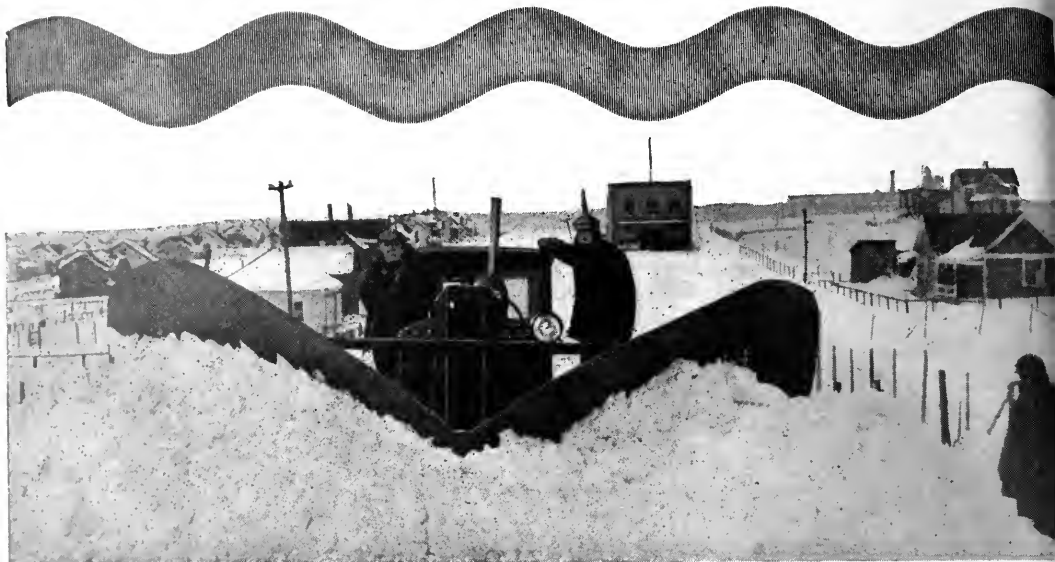
We are installing the so-called "Cambridge System" of taxation, which will cost perhaps \$40,000. This is believed to be a most progressive step and the most equitable system of taxation known.

In all our city departments we believe we are receiving enthusiastic, conscientious work, an honest administration of every department. We meet with much difference of opinion among citizens as to any improvements. Nevertheless, we try to interpret public opinion to the best of our ability and go ahead. A vociferous and often misguided minority is frequently in evidence. A majority of good, honest, level-headed citizens too seldom express their preferences, consequently we use our best judgment on many questions.

EDWIN F. LEONARD,  
Mayor.

## Rockford, Ill.

Concerning enthusiastic and conscientious work, I will say that I believe our men respond because we try to understand each other; that is, that while we are working for the city we are at the same time working for ourselves,



## Snow Storms are Coming!

You can count the days, now, that separate Northern communities from the dangers of heavy snow fall. What's to be done this year? Will your public be made to suffer for interrupted traffic, snow-bound fire equipment, halted ambulances, trolleys, and interurban communication? Not if your town, or township, is equipped with a "Caterpillar"\* Tractor. For "Caterpillars" provide a sure, quick, economical method of keeping streets and roads free from snow and ice. With new type snow-

plows "Caterpillars" cope with any condition of snowfall. And the same "Caterpillars" that protect life and property in winter will pay high returns when used for scarifying, grading, maintenance, hauling, park work and other jobs.

Let us give you interesting figures on the performance of 2-Ton, 5-Ton, and 10-Ton "Caterpillars" and arrange for an exhibition of moving pictures showing snow removal by "Caterpillar" methods.

*\*There is but one "Caterpillar"—Holt builds it*

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not merely for the sake of drawing our checks twice a month, but at the same time investing some of our efforts in behalf of the city of which we are a part.

We have tried, and I believe we have succeeded, in proving to the men and women in the city's employ that if they fail to deliver the goods they are cheating themselves, because they all in some way must pay the bill, and that their faithfulness in the carrying out of their duties will result in a saving to themselves.

I would say that enthusiastic and conscientious work is the key to success in all undertakings. Elimination of waste of time and materials rests with department heads. No one who lacks ability and experience in directing and supervising work has any business trying to get on our pay-roll. It would be my fault if that happened, so friendships and sentiments must not count.

Department heads are appointed with the understanding that they are expected to make good; that they have their own future at stake; that they have a free hand to organize their departments. That agreement is lived up to by all concerned, and it builds discipline and cooperation. While we have our troubles now and then, as will happen in any other city where a large number of men are employed, we never find it very difficult to settle our problems. A heart-to-heart talk generally settles our disputes.

Provision for the future growth of a city is largely a matter of vision; of anticipating expansion of various use districts in certain directions. It isn't always that an aggressive real estate man succeeds in proving to the public that his particular addition or subdivision affords the logical expansion. There are generally some well-defined natural barriers, halting the growth of almost every city in some direction. The whole plan then resolves itself into construction of sewer and water systems, and permanent pavements of such character as will permit further extensions without necessitating a duplication of improvements already constructed, or replacing them.

In the matter of "opposition from citizens, etc.," in carrying out our program, and "the greatest difficulty encountered," I want to say that when we plan something we plan on a large scale. That gives us an opportunity of compromising without the danger of sacrificing any important part of our program.

In closing, I want to state that perhaps the most important thing of all, is that too many city officials fail, not because of "opposition," but because they too often hesitate to put their shoulders to the wheel at the beginning of their administrations. I believe that it is up to the mayors to prove to the public that they *can* deliver the goods. Any mayor who gives the best that is in him, who is not afraid to tackle a job that is not altogether easy and pleasant, will receive the whole-hearted support of the general public, and opposition to his administration will come only from has-beens and professional knockers.

J. H. HALLSTROM,  
Mayor.

### Chattanooga, Tenn.

Sympathetic cooperation between public officials and departments and between their public servants and the citizenship generally is the first essential to efficient and progressive municipal management, and confidence is the most important factor in producing this cooperation. In order to secure this confidence from the public in its public servants, two things are essential: first, an open policy with the light constantly on, free discussion for development of public opinion, and criticism even, in advance of all important actions; second, honest, faithful and, so far as possible, efficient discharge of public duties. Public servants must keep faith, avoiding both partisan and personal bias.

Applying these principles and supported by a public press united in an effort to preserve the city's good name and push her progress, the municipal government of Chattanooga is able to secure general endorsement of progressive measures, maintain a low tax rate, and a reputation for efficiency in every department of the public service. We have nothing of which seriously to complain.

ALEX. W. CHAMBLISS,  
Mayor.

### Macon, Ga.

Our greatest difficulty comes from the fact that our tax rate of  $1\frac{1}{4}$  per cent, fixed long ago, has become entirely insufficient for the rapid strides made by this city. The expense of all departments increases, while our income remains about "in statu quo." Constant demands come to us for betterments, and the only way we can half meet them will be by the issuance of bonds, which we shall be compelled to do in the near future, as we have a margin for this purpose, according to legal requirements, of about one and a half million dollars. All departments, or nearly all, are doing enthusiastic, clean, honest work. We have not much to complain of in that regard, and once the people consent to an adequate bond issue we shall go ahead.

LUTHER WILLIAMS,  
Mayor.

### Stamford, Conn.

The greatest difficulty that I have encountered in giving this city an efficient administration has been a series of obstacles in the shape of false propaganda which a beaten political "machine" has endeavored to throw in my path.

However, we have let the people know just exactly what was going on all of the time, with the result that the "machine" here has not been able to get far with its tactics of endeavoring to politically sand-bag the duly elected servants of the people.

As far as I can see, there are many political highwaymen in this state who endeavor to steal the rights of the people through their elected representatives. Fortunately, the people are gradually realizing this state of affairs, and the old-time politicians and their methods of doing things are slowly but surely being thrown into the discard here.

I trust that your publication will be able to

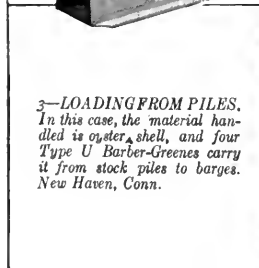


1—REPLACING WHEELBARROWS. A Type U loading brick from a kiln for the Onondaga Brick and Tile Co. at Onondaga, New York. It shortens wheelbarrow hauls in this case. In others, it does away entirely with wheelbarrow work.

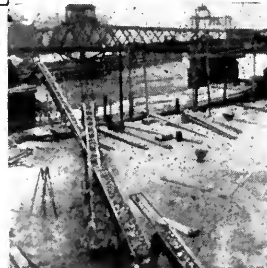


2—UNLOADING CARS. A Barber-Greene Type U being used for "hauling out" coal by the Martin Lumber Company, Geneva, Illinois.

U-Type Barber-Greene Portable Conveyor, equipped, with electric motor.



3—LOADING FROM PILES. In this case, the material handled is oyster shell, and four Type U Barber-Greenes carry it from stock piles to barges. New Haven, Conn.



4—PIT WORK. A Type U handling gravel for Pierce and Piron at Aurora, Ill.



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## U-Type Portable Conveyors—Unusually Useful

This conveyor is our one-man machine for universal use. It is 22 feet long, has a 12-inch belt of special patented construction with steel flights, every 18 inches, which enables it to handle material at exceptionally steep angles. Skirt boards run the full length of the belt, are 6 inches deep, and enable the conveyor to handle large lumps.

There is a crank operating a self-locking worm winch, for elevating the discharge end to any height desired, up to an angle of 35 degrees.

This conveyor generally displaces from two to ten men, depending on the nature of the work. As a rule, it handles about 26 tons of coke per hour, 44 tons of coal, and 90 tons of gravel. The amount per hour depends on the nature of the material and on the conditions of loading.

The type U has proven so popular in every state of this country and in foreign countries that our volume this year has enabled us to cut our production costs considerably. Making this conveyor in a single width and length permits us to offer high quality at a low price. We have, therefore, reduced the base price (for the conveyor without power) to \$350—a reduction of \$125.

With a 3-phase, 60-cycle, 220-volt motor, the price is \$453. Other motors are supplied on our usual price list for special motors. With Fuller and Johnson gas engine the conveyor is furnished for \$485. All prices f. o. b. Aurora. Send for detailed description and catalog.

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do much to aid progressive administrations to overcome such obstacles as I have outlined above and the propaganda which often takes the shape of "It never has been done that way before," so it can't be done, or "It has always been done so in the past" and should be in the future.

ALFRED N. PHILLIPS, JR.  
Mayor.

### Richmond, Ind.

Upon assuming the office of Mayor of Richmond, a city of 30,000 population, I immediately announced a policy of "no politics in city affairs"; that the various boards and department heads would be expected to manage and control without interference on the part of the executive; that the City Council would be kept informed of all matters pertaining to the city affairs; and that courtesy and cooperation would be expected of all. The greatest difficulty to be overcome was to make the employees and officials, as well as the citizens in general, believe and understand that this would really be my policy, and it required the greater part of the first year to "put across" this idea.

Slowly but surely the employees and officials caught the idea of responsibility and service, and before the first year had passed, the effect of a policy of cooperation and confidence began to show, and except in a very few instances good results have been attained.

The most pleasing feature of my administration so far has been the wonderful spirit of cooperation given us by the citizens in general, and particularly by the best business interests. Frequently committees of business men have been called into conference on finan-

cial matters, letting of contracts, and on many things of vital importance to the successful administration of city affairs, and always they have given of their time freely and lavishly.

I have given my whole time to the business of the city in meeting with the different boards, consulting with citizens in the Mayor's office, presiding in police court, observing the working of the different departments, interviewing business men at their places of business, meeting with the various civic and other organizations, and keeping in close touch with every activity pertaining to civic welfare. In addition to the regular business of the city, we operate a municipal electric light and power plant efficiently, and it is a part of my duty to maintain an efficient working organization for this utility without any additional compensation. This is being done by giving men responsibility, promoting from the ranks when vacancies occur, without regard to politics, and giving employees to understand that their positions depend upon "service" and not upon "pull" or political influence.

The outstanding result of these policies is reflected in the loyal support of all citizens, as well as the business interests, and especially in the cooperation and assistance of both daily newspapers. The curse of most cities is the usual petty politics which so often enters into every activity and every department of city government. Here we have a city with a Democratic Mayor and the official family about equally divided, with a Republican City Council, a Republican citizenship, and Republican newspapers, all working in harmony for the welfare of the city, and it is bringing results.

LAWRENCE A. HANDLEY,  
Mayor.

## The Motor Bus as a Playground Auxiliary

WE are getting a new interest in walking, through the Boy Scouts and Girl Scouts, Camp Fire Girls, playgrounds, Y. M. C. A. and other agencies. But the great obstacle to the short half-day walks such as are most popular with us is that it usually takes a four- or five-mile trip to get out of the city. These four or five miles are usually pavement, hard on the feet and hard on the muscles, and of little interest. Often the street car does not go in the direction in which we wish to go. If we can take the hikers to the edge of town by motor bus and let them walk from there and meet them there again at night, it will greatly increase the attendance.

The picnic or excursion should be a feature in every recreation system. It is always possible, if there is a truck or bus to take out the crowd. One truck can transport two hundred children to a picnic ground five miles away in four trips and at just about the times they naturally want to go, for some will be at the playground at eight, others at half-past, others at nine, and others at nine-thirty or ten. It would be well to give every playground such a day once a week. One truck could provide such

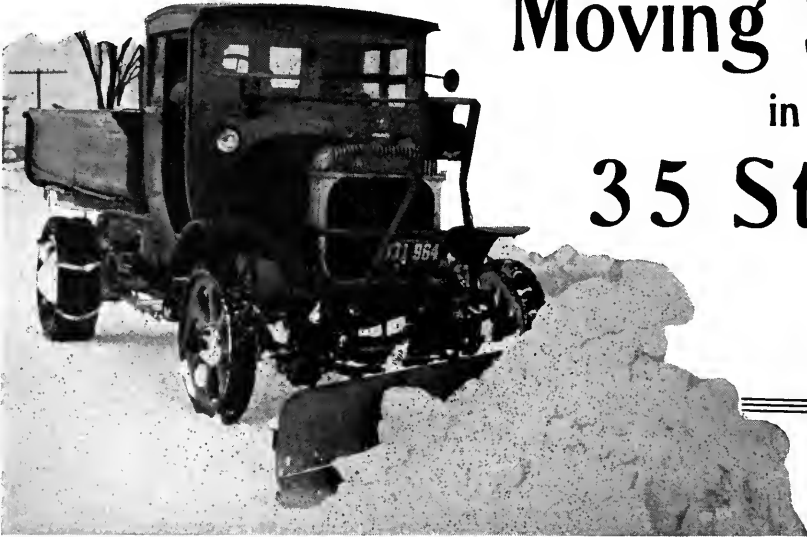
entertainment for six playgrounds. The expense of transporting two hundred children ten miles would not be more than ten cents apiece, and should not be more than five if the janitor or one of the play directors drove the truck. Such a wagon solves the problem of transporting the children to the lesser meets or tournaments where only two playgrounds are competing, and to the old swimming hole.

If regular school busses of large size are purchased, the initial cost will be from \$2,000 to \$2,500. This expense may block the enterprise at the door-step. Such cars, however, are needed constantly by every school system. How can any class study geography effectively without going to see lakes, rivers, hills, forests? Such a school wagon could be used continuously by the school system. Many of the smaller towns now have consolidated schools to which the children are transported by school wagons. These wagons are all subsidized by the state and largely paid for out of state school money. The country needs them during the school year, the city during the summer. Why not reverse the tide in the summer and use them then to take city children into the country?

—HENRY S. CURTIS, Ph.D., in *The Playground*.



# Moving Snow in 35 States

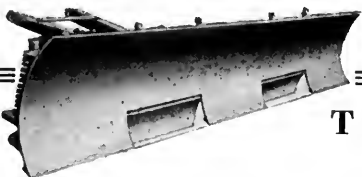


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Prepare for the snows that are bound to come. Prepare now by installing snow plows of manufacturers long experienced in the business.

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**SPRINGFIELD, ILLINOIS**

# Two Suggestions for Relief of Municipal Traffic Congestion

By Harold W. Slauson, M. E.

**T**ROLLEY transportation should prove a supplement to, rather than a deterrent of, street traffic. Why could not existing trolley companies use their rail equipment for long-distance hauling with no intermediate stops to take on or discharge passengers? The short-haul traffic could be handled by means of supplementary motor busses owned by the trolley company and operated either by gasoline engines, storage batteries or flexible connections with the overhead trolley wires. Such busses could stop at the street corners as easily as a private automobile and could carry all of the local traffic, with arrangements for transfers at points one or two miles apart at which the rail-bound trolley cars could stop. The rail-bound trolley, with its infrequent stops, could then travel as fast as its own line of traffic would permit. Under this arrangement passengers could be carried more quickly either by the short-haul bus or the express trolley than is possible under present conditions of traffic. It may be argued that the increased number of busses would so add to highway congestion as to neutralize their benefit; but they could replace almost an equal number of trolley cars now used for the short-haul traffic, and because of their ability to pull up to the curb to receive and discharge passengers, and to weave in and out of traffic, I am positive that the carrying capacity of our streets could be materially increased.

But traffic cannot keep moving continuously; cars are on the street because they have some definite destination in view, and this brings us to the most serious of our municipal problems—stationary traffic. If we adhered to the letter of the non-parking restrictions, the ten-minute parking-limit signs and the admonitions of some of our city court justices, we could not even stop our car for lunch, but would eat “a la car,” as it were.

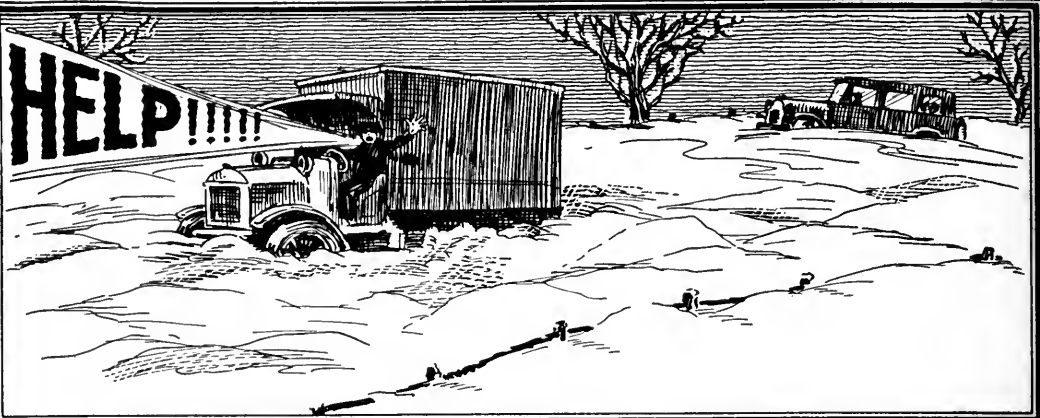
We must get at the fundamentals and so arrange and design our cities that, as the city grows in population, its ability to ac-

commodate stationary and moving traffic will grow in the necessary proportion. Therefore, the blame for traffic congestion in reality lies with those who are responsible for population congestion, and to them we should look for the remedy.

Examine the streets surrounding any large apartment house or office building. We find that such a building, while of course not gasping for air, is literally gasping for parking space. It has reached out its tentacles in all directions and has pounced on every street radiating from it as a center in order to furnish parking space for the cars of its tenants and customers. Near-by private houses which may boast of but one automobile have their entrances blocked by the cars of those doing business in that building. A near-by public garage is hardly the answer, for this would occupy valuable area and would not be used by those who came to work early enough to find parking space near their building.

My proposal is merely that, as every modern building is required to devote a certain proportion of its area to elevator and fire-escape requirements, so in the large buildings of the future we should require that they furnish adequate parking space *within themselves*. This will employ the third dimension—which is the cause of traffic congestion—as a means of relieving that very congestion. This is not so difficult as it might sound, for one sub-cellar or lower floor of the building which may be connected with the street by ramps could be made to furnish automobile storage space equal to at least 5 per cent of the available rental area of a twenty-story building. This would, of course, reduce the rental return of the building by 5 per cent, but if department stores have found it advantageous to rent or construct free garages for the benefit of their patrons, the owner of an office building or apartment house would find it equally “good business.”

—From an address before the Boston convention of the Motor and Accessory Manufacturers Association, September, 1923.



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# Leakage and Unaccounted-for Water

By J. N. Chester

Consulting Engineer, Pittsburgh, Pa.

THERE is a wide variation in the minds of water-works men generally as to the actual or permissible amount of unaccounted-for water chargeable to different divisions of the system. General confidence in the tightness of the pipe systems is probably typical of the judgment of a great majority of those having charge of this class of work, and we have found the management of certain of our large cities having no definite idea as to what figures should apply to unaccounted-for water.

## Losses as Percentage of Pumpage

While a few water-works officials may think of these losses in terms of the component parts that make up the total loss, it is probable that the average superintendent would think of the quantity or percentage which represents the difference between the pumpage and the ultimate delivery, or between the inflow at the source and the outflow at the spigot, as indicated by the meters.

In the city of Pittsburgh rate case, our computations were based on a total unaccounted-for water equal to  $33\frac{1}{3}$  per cent of the pumpage, and this is the figure also used in our general practise, unless the available data applying to that particular plant will justify doing otherwise. Percentages from actual tests within our experience might be noted as follows, together with certain published figures:

### TOTAL UNACCOUNTED-FOR WATER

Norfolk, Va., 38.2 per cent, exclusive of pump slippage.

Knoxville, Tenn., 37.8 per cent, exclusive of pump slippage.

\*Kensington Water Co., 29.3 per cent, inclusive of pump slippage.

\*Ellwood Water Co., less than 19.0 per cent, inclusive of pump slippage.

Published figures may be quoted as follows:

Milwaukee, Wis., 25.27 per cent, inclusive of pump slippage.

Detroit, Mich., 27.5 per cent, slippage not stated.

New Bedford, Mass., 23.0 per cent, slippage not stated.

\* A large percentage of the pumpage was taken by one factory.

The foregoing figures give some idea of averages. The maximum, of course, may be 100 per cent, as was the case at White Sulphur Springs, W. Va., where we were

called in for a pitometer survey in connection with the 12-mile pipe line for the water-supply to the Greenbrier and White Sulphur Springs Hotels. The minimum might approach zero percentage.

## Sources of Unaccounted-for Water

The New England Water Works Association Committee report of 1916, on waste, mentions certain sources of losses:

1. Leakage from mains in the streets
2. Leakage from the service pipes between the mains and the meters
3. Underregistration of meters (slippage)
4. Water used for various purposes, not registered or estimated, as, for instance, water used for flushing sewers

Perfection, in leakage from street mains, can be obtained only by constant effort, careful work, or rigid specifications enforced. That views on this subject greatly differ is to be seen in figures tabulated from a paper read before the New England Association in 1914:

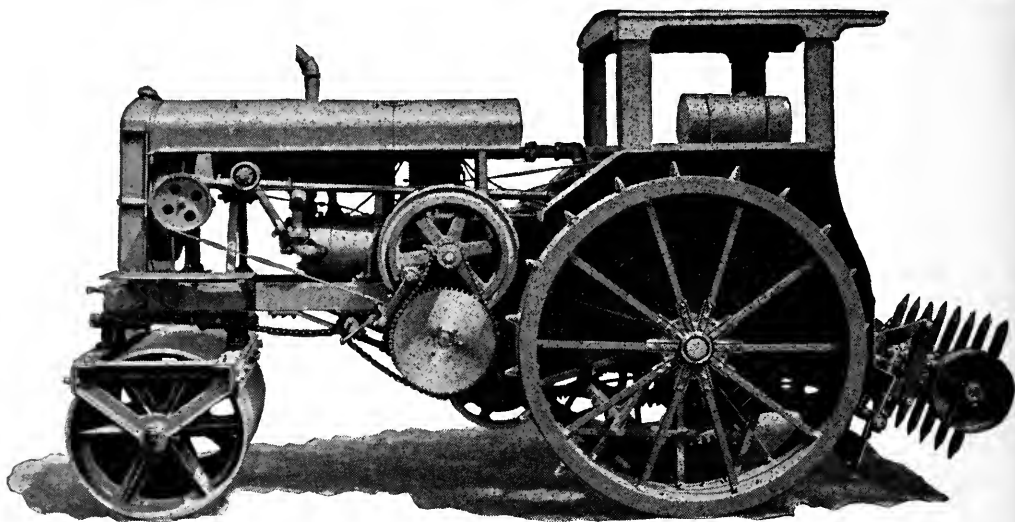
### STANDARDS FOR CAST IRON PIPE LEAKAGE

Engineer and Source	Specified	Test
	Per Inch Mi.	Result Per Inch Mi.
C. F. Loweth, statement A. S. C. E.	60-80	
E. G. Bradbury, proposed N. E. W.		
W. Assn. ....	100	
W. D. Gerber, statement Ill. W. S.		
Assn. ....	167	
F. A. Barbour, Akron—86 tests..	200	83.4
F. A. Barbour, Akron—38 tests....	200	61.7
New York Aqueduct, specifications.	240*	
J. H. Gregory, Columbus (3.2 mi.)	500+	422
Dexter Brackett, Boston (51.5 mi.).	...	466

\* 2 gals. per ft. of lead joint.

This leakage at time of test, however, does not tell the story for conditions after the system has been in service for perhaps 25 years. The general run of joints may have tightened, or closed up, and concentrated leaks may have appeared from various causes. It is these larger leaks that require the vigilance of the water-works man with leak finders, geophone and pitometer, and sometimes only a Sherlock disposition. We had a case at one of our own plants where a  $1\frac{1}{4}$ -inch pipe had been running full flow for many months.

We have found that a combination of the pitometer and geophone can produce most



## Announcing the Avery Combination 10-Ton Tractor-Roller with Power Scarifier

Here is a machine that every road and street official and contractor has been wanting—a combination Tractor-Roller with Power Scarifier which can be used for reconstructing stone, gravel, and oil or water bound macadam roads and streets. It is the New Avery Ten-Ton Tractor-Roller with Scarifier operated by the power of the tractor motor direct. Much simpler and easier to care for and operate than a pneumatic or steam scarifier. With this machine you can do the three operations necessary to putting bad roads or streets in good condition. With the scarifier you can put the surface into workable condition; with the tractor and grader you can re-shape and crown the highway and with the roller you can put on the finishing touches and make the surface hard enough to be rain-resisting and also to stand up under heavy traffic.

Write for special circular describing the Avery Tractor-Rollers in 20-35, 25-50 and 45-65 H. P. sizes, also other Avery Road-Building and Maintenance Machines.

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*Distributors:* Avery Company of Texas; Dallas, Amarillo and Beaumont, Texas  
Also Other Principal Machinery Centers

# AVERY

Road-Building, Maintenance and  
Hauling Machinery

### What Users Say About This New Avery Tractor - Roller

#### Just the Machine for Road Construction Work

We like our Improved Avery 20-35 Road-Roller-Tractor fine. On this job we roll our sub-grade before laying the concrete and the brick. After laying the brick we then roll the brick street down in fine shape. We believe this machine is just the machine for road construction work. We would most certainly recommend it to any contractor who needs a good road roller for his work.

MONTAGUE CONSTRUCTION CO.  
Carbondale, Ill., June 21, 1923.

#### Very Powerful—Very Easy to Operate

Our Avery Ten-Ton Road-Roller-Tractor has been satisfactory in all respects, very powerful and very easy to operate, does not take an expert mechanic to operate it—just anyone with good common sense. I have been in several cities to see other rollers work and in my judgment, the Avery is the simplest and most efficient roller on the market. The Scarifier works to perfection, no air or steam leaks in lift, very simple and very strong, will penetrate any kind of a street surface such as gravel, water or oil Bound Macadam. My expense has been very economical.

E. E. RANDOLPH,  
Street Commissioner.  
Muncie, Ind., Aug. 3, 1923.

#### The Best Machine He Ever Saw

As a combination tractor-grader-scarifier—and roller, the Avery is the best machine I ever saw for building or reconstructing macadam, gravel or stone roads.

North Madison, Ind., W. N. LAWSON, Supt.  
Aug. 1, 1923. Indiana State Highway Dept.

#### Saving Over \$200 Per Week

We like the Avery 25-50 10-ton Tractor-Roller with Power Scarifier fine. It does the most work at the least cost of any street making machine we ever had. We have been able to reduce the payroll on an average of over \$200.00 per week, and we are doing far more work.

CHAS. BUCK, Street Comm.  
Madison, Ind., Aug. 1, 1923. Madison, Indiana

TABLE NO. 3  
Possible Inaccuracy of Large Meters

Kensington Water Company		Frederick University of Large Meters			
Date of Test		Meter Size	Location	Cu. Ft. per Min.	Meter Accuracy
Nov. 8, 1922.....	8" detector	11th Street	30.30	58.3% slow	
Nov. 8, 1922.....	8" detector	11th Street	11.13	82.3% slow	
Nov. 8, 1922.....	8" detector	11th Street	6.30	89.5% slow	
Nov. 24, 1922.....	3" detector	11th Street	34.17	79.3% slow	
Nov. 24, 1922.....	8" detector	(after cleaning)	31.17	43.4% slow	
Dec. 16, 1922.....	8" detector	11th Street	31.4	53.4% slow	
Dec. 19, 1922.....	8" detector	(after repairs)	64.2	12.5% slow	
Dec. 27, 1922.....	8" detector	Same as above	26.2	15.3% slow	

TABLE NO. 3—Continued

Tri-Cities Water Company	
Jan. 29, 1923, 6" x 3" Hersey Detector	
3" Gem Plate Glass Co., full pipe....	25.90% slow
American Plate Glass Co., full pipe..	10.85% fast
4" x 1" Keystone Compound	
Atlas Steel Co., full pipe.....	23.5% fast
3" Empire Disc	
McBeth-Evans Glass Co., full pipe.	6.4 % fast
4" x 3/4" Keystone Compound	
American Steel & Wire, full pipe.	31.6 % fast
4" x 1" Keystone Compound	
Zinc Works, full pipe.....	11.1 % fast
2" Keystone Meter	
Pittsburgh Steel Co., full pipe....	8.4 % fast

TABLE NO. 4

## Kensington Water Company

## Increase in Registration by New Meter

Location	Old Meter		New Meter	
	One Period	Cubic Feet	One Period	Cubic Feet
Club House .....	13,445		27,300	
Railway Station .....	19,440		69,210	
Railway Tank .....	170,640		213,000	
Domestic No. 2432.....	5,000		25,500	
Domestic No. 2413.....	1,400		3,300	
Domestic No. 2701.....	3,600		4,949	
Domestic (Com. Case).....	1,400		2,900	

surprising results in finding leaks when in the hands of an experienced man, and the writer would feel that he had done a great service toward the progress of economy if the bugaboo about pitometer surveys could be dispelled. There is many a water-works system where the serious leaks can be discovered in one or two nights' work with the pitometer, and even the larger systems require only a correspondingly short period of time to eliminate the major troubles.

**Underregistration of Meters (or Slippage)**

The New England Committee on Meter-Rates has stated that "there are few meters in use at the present time that will register a steady flow of as little as 100 gallons per day" and that if at least half of the meters

in service could handle the daily quantity passing at a uniform rate, instead of the fluctuating rate, it would all pass as leakage or slippage. In the Milwaukee report for 1912, there is assumed the figure of 3 per cent as underregistration of meters, while for Grandview Heights, Ohio, 25 per cent was suggested as slippage of the large meter.

We tabulate below partial results from tests of meters for the Kensington Water Company and the Tri-Cities Water Company, which is conclusive proof to our office that the revenues of the Department can be maintained at a higher level by careful tests and maintenance of the large meters in the distribution system, but relative results might also be obtained by careful maintenance of the smaller meters. It should be stated that the data for Kensington represent progressive tests on the same meter, and show a final failure to make that meter good, by repairs:

It is to be noted on the percentages for Tri-Cities that most of the meters run fast, which was the result of a mushy deposit within and attached to the sides of the measuring chamber which produced a greater number of revolutions for the same quantity of water passing and yet did not disturb the operation of the meter in the same ratio that it decreased its capacity.

We have also tabulated a few results from replacement of old meters with new ones on the smaller-sized meters in Table 4.

ACKNOWLEDGMENT.—From a paper read before the Annual Convention of the American Water Works Association.

**PRAISE FOR PUBLIC OFFICIALS FROM ONE WHO KNOWS**

That we have had, and have now, incompetency and dishonesty in the public service is of course true, but that such conditions are general has not been my conclusion, based on a fairly extensive experience and knowledge of public affairs. I have had twenty years of public service in municipal, county and state office and for over twenty-five years I have been brought into frequent contact with men in the public service of the nation, state and municipality. It is my opinion that the public generally secures better and more honest service for less money than banking, commercial or industrial enterprises secure from their officers or employees. . . . There is an attraction in public service that causes men to seek and hold public office and work for less pay therein than they could make by similar effort in almost any profession or business.—From a paper on "Power, Duty and Responsibility of the Individual Citizen," in the American Bar Association Journal, by Herbert S. Hadley, former Governor of Missouri, and Professor of Law in the University of Colorado.

# "Will soon pay for itself"

"I HAVE been grading roads that cost from Seventy-five Dollars to One Hundred Dollars per mile by contract, and with the Best 'Thirty' they have cost from Twenty Dollars to Twenty-five Dollars per mile in cost of labor, gas and oil. *You can readily see that it will soon pay for itself,*" a County Commissioner in Oklahoma writes.

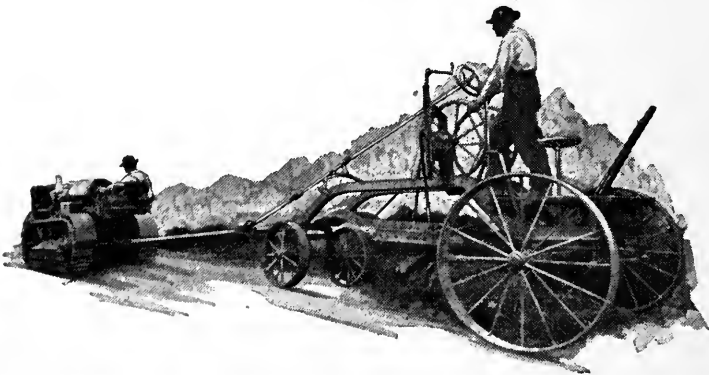
Investigate the quality of work done and the low cost on other jobs where Best "Thirties" or "Sixties" were used. Write for a list of nearby owners.

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New York City



72-1023

# BEST TRACTORS



# Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York, and from other sources.  
For further information, Mr. Williams may be addressed in care of THE AMERICAN CITY MAGAZINE,  
443 Fourth Avenue, New York.

## Recent Zoning Ordinances and Enabling Acts

Tuckahoe, N. Y.—Ordinance, July 13, 1923  
Pennsylvania.—Enabling act for boroughs and townships of the first class, June 29, 1923  
Toledo, Ohio.—Ordinance, Sept. 10, 1923

## Recent Zoning Decisions

Louisiana.—State ex rel. Civello v. City of New Orleans, Appeal from Civil District Court for the Parish of Orleans.—In passing on a local zoning ordinance, the Court says that esthetic considerations, fostering comfort or happiness and consequent values generally of the property in the neighborhood, are matters of general welfare, within the purview of the police power.

### The Nutley Case

The most important recent zoning case is State ex rel. Ignaciunas v. Risley, Building Inspector of Nutley, decided by the Supreme Court of New Jersey, August 13, 1923. The case was mentioned in the "Notes" of last month, but deserves fuller treatment than could be given it in the space available at that time.

The zoning ordinance of the town of Nutley provided for the usual residential, business and industrial districts, from which alien activities are excluded. Ignaciunas is the owner of a lot in a residential district. He applied to the building inspector of the town for a permit to erect a grocery and butcher store on his lot. The inspector refused to issue the permit for the reason that the ordinance forbade the construction of such buildings in the district.

The state empowering act under which the Nutley ordinance was passed authorizes the creation of a board of appeals, and the Nutley ordinance provided for such a board. These boards are given power, in specific cases of unnecessary hardship, to vary the ordinance in accordance with its general spirit and intent. In this respect New Jersey is in accord with what is now regarded as the best practise. In matters involving intricate and varying detail, like building construction, no rigid uniform rule could be either just or expedient without some such method of adjustment. Ignaciunas applied to this board for relief, and his application was denied.

The model zoning law, issued by the Federal Department of Commerce, following the practise in a number of states, grants the party applying for the permit, who is refused relief by the board of appeals, the right to bring the matter before the courts in certiorari, in which the case may be reheard not only on the law,

but on the facts, and any injustice or hardship which in the opinion of the court exists in that special case remedied without overthrowing the ordinance. Such relief by certiorari is not provided for in the New Jersey law, and Ignaciunas therefore brought the matter up on mandamus. This is the case which was decided in his favor.

The Court refused to hold the entire zoning ordinance void. It decided that the attempt to exclude the store in question from a residential district was an unconstitutional attempt to invoke the police power; thus in effect holding that it was impossible, in New Jersey, to create residential districts from which stores are excluded. The town still has an appeal to a higher court. The law of New Jersey on this subject cannot therefore be said to be conclusively settled until, in this or some other case, the court of final resort in the state has passed upon it. Residential districts from which stores are excluded have been upheld by the courts in several of our states.

The courts of New Jersey of late are manifesting an unfriendly attitude toward zoning. For this there are several causes. Some of the zoning ordinances in New Jersey have been carelessly drawn; and while it may be said, with truth, that this does not affect the validity of the well-drawn ordinances, it is natural that courts which have been declaring portions of zoning ordinances void should acquire a slant against zoning. This attitude would naturally be strengthened by the fact that the New Jersey courts cannot, in mandamus, vary the letter of ordinances to relieve undue hardship, as can be done in those states where certiorari is the remedy.

### How Certiorari Works in Administration of Zoning Ordinances

The way in which certiorari allows the judges to enforce justice in the administration of zoning ordinances and so leads to decisions which uphold instead of voiding such ordinances is illustrated by the comparatively little-known case of Black Belt Corporation v. City of Jamestown, Supreme Court, Chautauqua County, New York, reported in the *Jamestown Evening Journal* for November 18, 1922.

The corporation was the owner of a lot in a residential district, upon the rear of which, prior to the passage of the zoning ordinance, it had erected a factory. It applied to the Board of Appeals for an extension of its factory on the rear of an adjacent lot in the resi—



## How Do You Fight Snowstorms?

**N**EW YORK does it with a fleet of 100 Model "W" Cletracs. With the first heavy snowfall, Minneapolis too sends out its Cletracs. These sturdy crawler tractors quickly break through and clear up the big drifts. Working tirelessly, they keep streets and sidewalks open and prevent costly tie-ups.

One user writes, "Cletrac is giving us excellent satisfaction. I believe it will do the work of 12 horses. It can be used to haul plows, ice cutters, road machines and the like." Another says, "We bought a Cletrac ten days ago and have been using it constantly in cleaning out our streets from the bad storms which have prevailed throughout New England."

May we tell you how many progressive municipalities, small as well as large, in the Snow Belt, are protecting the comfort of their people every winter with Model "W" Industrial Cletrac, the "snow fighter that never quits" and how this same tractor is saving them money in Spring, Summer and Fall on an amazing number of road and maintenance jobs?



HARD THIS WAY, BUT—



EASY ON A TRACK THE CLETRAC WAY

## THE CLEVELAND TRACTOR COMPANY

*Largest Producers of Crawler Tractors in the World*

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Cleveland, Ohio

dential district, which the Board refused to grant. In certiorari to the upper court, the decision of the Board of Appeals was reversed and the desired permission granted. The Board of Appeals had power to vary the ordinance, in cases of undue hardship, by granting extensions such as the one applied for; and the upper court held that it could review not only the law under which the Board acted, but its discretionary action on the facts. In so doing it decided that since the factory extension would emit no fumes, make no noise and be in the rear of the lot, like the main factory, it would not injure the residential neighborhood; and since the factory was built, before the zoning ordinance was passed, with such an extension in view, it would be an undue hardship not to allow it. It may be surmised that, if the Court had not seen its way to grant

relief in this way, it would have been tempted to discover some way to invalidate the ordinance to do so.

The many zoning ordinances passed in New Jersey in the short time since zoning started in this country show beyond question that the New Jersey communities wish to exercise the full power of zoning, and will eagerly await the final outcome of the Nutley case to see if they have it. If that decision is adverse, there is still the possibility that, under a state enabling act more in accord with the best practice in this country, which New Jersey might pass, the courts would hold differently. Otherwise there is nothing left but a state constitutional amendment; for New Jersey is not likely to remain content for long without the power to pass reasonable conservative zoning ordinances in all their completeness.

## The Municipal Bond Situation

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

INVESTMENT bankers who deal in municipal bonds have, after a long period of inactivity, at last cut the price of high-class issues in an effort to clean out unsold balances of bonds they have carried on their shelves for months. This, of course, means that a general decline in municipal bond market values has occurred and municipalities which have issues to float at this time will be obliged to pay a higher rate of interest on their bonds than they have had to pay for some time past.

The state of Illinois was in the market recently with a \$10,000,000 issue of Soldiers' Bonus bonds. As the state is willing to pay only 4½ per cent interest on the bonds, which according to law cannot be sold below par, bankers who are interested in the issue were unable to submit bids when the bonds were offered recently. This state will probably be compelled to re-offer its bonds in a larger amount shortly and may find the bids of the bankers even less attractive than those recently submitted.

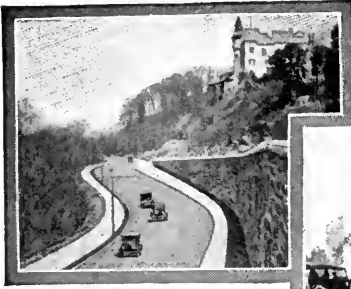
The city of Buffalo was successful early in September in selling \$3,510,000 4¼ per cent bonds to a local bank. New York City bond houses refused to bid for the issue, as in this case also the bonds had to be sold at par or better. Buffalo bonds represent about the highest grade of municipal credit. The recent offering clearly

indicates that the most favored municipal borrowers must pay at least 4¼ per cent for funds borrowed at this time. Portland, Ore., has just sold 4 per cent bonds at 90.

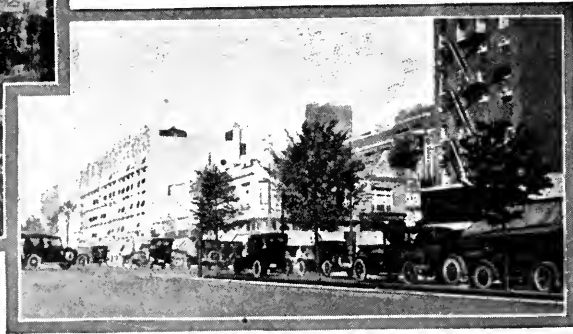
Although the market has run into a period of relatively high interest rates, there are a number of large new offerings scheduled this month by cities and counties throughout the country. Wayne County, Mich., has \$1,900,000 5½'s, and Kansas City, Mo., \$2,000,000 4½'s. On October 1 Newark, N. J., is planning to offer \$3,300,000 4½'s, and Philadelphia \$4,000,000 4¼'s. Akron, Ohio, will also be in the market with \$1,000,000 5¼'s. The state of Missouri has just announced the offering of \$5,000,000 4½ per cent road bonds on November 1. Other municipalities that are offering issues which exceed \$1,000,000 are Duval County, Fla.; Galveston, Tex.; Toledo, Ohio; Euclid, Ohio; Pinellas County, Fla., and Hawaii.

### IMPORTANT STATE AND MUNICIPAL BONDS SOLD DURING SEPTEMBER

Amount	Borrower	Maturity	Rate (%)	Net Yield (%)
\$800,000	Maine .....	1941-50	4	4.18
3,510,000	Buffalo, N. Y. ....	1924-43	4¼	4.23
500,000	Denver, Colo. ....	1943-62	4½	4.45
386,000	Middlesex Co., N.J.	1925-49	4¾	4.56
3,360,000	Cleveland, Ohio....	1928-48	4¾	4.63
900,000	Dodge Co., Wis. ....	1930-40	5	4.85
3,955,000	Norfolk, Va. ....	1922-52	4½ & 5	5.01
500,000	Sumter Co., S. C. ..	1928-52	5	5.17



*Beautiful Riverside Drive, New York City, Tarvia since 1914.*



*Typical traffic on the Grand Concourse and Boulevard, New York City, Tarvia since 1911.*



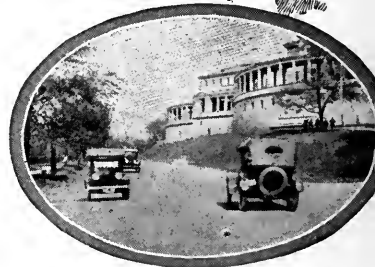
## 500 Miles of Tarvia Streets in the City of New York

In New York City, street construction and street maintenance are problems of tremendous difficulty. For New York's Bureau of Highways has to cope with the ceaseless, grinding traffic of more than 400,000 automobiles and 60,000 horse-drawn vehicles.

And Tarvia has played its part in solving these problems. First used in 1906—today there are more than 500 miles of Tarvia streets in Greater New York.

But, not only in New York, in thousands of other cities and towns, Tarvia is solving the good roads problem. For Tarvia roads are firm and smooth, mudless and dustless at every season of the year. Furthermore, they are far less costly to build and maintain than any other type of modern highway. Tarvia insures the most miles of good roads that can possibly be built and maintained with the road funds available.

Experience has proved that this country needs greater mileage of moderate-priced, low-maintenance all-year highways. Tarvia roads meet this need. There is a grade of Tarvia for construction, repairs and maintenance.



*Hall of Fame, N. Y. University, on Sedgewick Ave., Tarvia since 1918.*



*If you will write to our nearest office we will promptly and gladly give you practical co-operation in solving your road problems.*

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Youngstown	Milwaukee	Toledo	Columbus
Baltimore	Syracuse	New Orleans	Rochester

THE BARRETT COMPANY, Limited: Montreal Toronto  
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*West 183rd St., N. Y. C.  
A Tarvia street since 1912*



*Monroe Av. & 175th St., N. Y.  
Both Tarvia streets since 1912*

# The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing  
Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

## Mayor Cannot Act as Attorney for Those Accused of Local Offenses

The South Dakota Supreme Court has ruled that where a mayor of a city is an attorney he has no right to accept employment to defend persons accused of crimes committed within the city. (*State vs. Taylor*, 193 Northwestern Reporter, 56.) The Court rules that a law firm of which the Mayor of Huron, S. Dak., was a member improperly appeared as attorneys for persons under prosecution for such crimes. The ruling is rested on statutes defining the powers and duties of mayors, statutes worded substantially the same as statutes and charter provisions in other states are worded. But the Court says, "It would seem as a matter of public policy, and regardless of any statute on the subject, the duties owed to the public by the mayor of a municipality are so absolutely incompatible with the duties of an attorney for a party charged with the commission of a public offense, committed within the jurisdiction of such municipality, that both duties cannot be properly performed by the same person."

After setting forth statutes which charge mayors with the enforcement of laws of their cities, etc., the Court says:

"It is the plain duty of the mayor of a city to render all the aid within his power in the suppression of crime within such city, and the apprehension, prosecution, and the conviction of those guilty of crime. In order that he may the more effectively carry on such work he is given control of the powerful arm of the police force of the city; but it could not be expected that the police force, under the control of the mayor, can render efficient assistance in the prosecution of criminals while the mayor himself was engaged in their defense. We can think of no condition that would give a greater feeling of security to those who are criminally disposed than the knowledge that, if apprehended, they could, upon the payment of a stipulated sum, have the executive arm of the municipality at their disposal, nor do we know

of any condition that would go so far to make a municipality a paradise for crooks. To render the police force useless in the enforcement of the law, it is not necessary that the mayor should actually instruct the members thereof to aid in the escape or acquittal of those accused of crime, nor to suppress or destroy the evidence of crime, nor even that they should remain passive in regard thereto. The mere fact that the mayor is engaged in defending criminals is sufficient to paralyze the arm of the police force."

## Limitations Under Statute Giving Property Owners Control as to "Kind of Pavement" to Be Laid

A section of the Indiana statutes provides that when a preliminary paving resolution is adopted, the board of public works shall adopt not less than four sets of detailed specifications, each describing the wearing surface of a certain kind of modern city pavement, and authorizes a majority on the street to require by petition that specifications be filed for another kind of pavement; and that after bids are received a majority on the street may by petition require the improvement to be made by adopting one of the kinds of pavement covered by the bids.

Construing this statute in the case of *McGuire vs. City of Indianapolis*, 135 Northeastern Reporter, 257, the Indiana Supreme Court holds that it does not permit the property owners to designate a particular brand of material, as against another brand used in producing the same kind of paving. So, it was declared that the Board in this case having adopted Mexican asphalt as a material, could not be required to substitute Trinidad Lake asphalt. The Court said:

"The whole tenor of the act seems to be that the owners on the street may control the completed entity which is designated by the name of some 'modern city pavement.' But the details, specifications and manner of producing that pavement are left to the Board. It is the re-



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lighting bills light-  
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ing units, each prism  
designed to direct the  
light as needed.*

sult and not the details which those on the street have a right to control. It is for the Board to say, by specifications, what test the materials shall have. It is for the owners living on the street to say whether it shall be a brick, asphalt, creosoted block, or some other 'kind of modern city pavement.'"

### **Municipality Not Liable for Injury to One Unauthorized Employee**

In the case of *Good vs. City of San Bernardino*, 193 Pacific Reporter, 790, passed upon by the California District Court of Appeal, it appeared that one member of the Board of Commissioners in control of the city's water-plant employed one Cordori to do such painting at a pumping-station as should be directed. Cordori, in turn, employed Good to assist him, and while the two were painting a ceiling in the station Good was fatally injured through coming in contact with an uninsulated wire carrying a high electric voltage. The Court denied his widow's right to recover damages from the city on the grounds that Cordori was unauthorizedly employed, that he had no actual or implied authority to impose responsibility on the city by employing assistance, and that the city was not bound to foresee that this work would be done, and was, therefore, not negligent in failing to have the wires placed in safe condition or to warn Good against the danger to which he subjected himself in assisting in the painting. It was further decided that knowledge by the engineer in charge of the plant, that Good was working in the place, and failure on the part of the engineer to exclude him from the premises, did not create liability against the city, since the matter did not fall within the scope of the engineer's authority or duties.

### **City Validly May Increase Occupation Tax After Original Tax Has Been Paid, But Tax Must Be Reasonable in Amount**

Where a city has charter power to tax an occupation, it may increase the rate any time before expiration of the period for enforcing the tax, although the tax first paid has been levied, holds the Georgia Supreme Court in the case of *Williams vs. Mayor and Council of Waynesboro*, 111 Southeastern Reporter, 47. But it is decided that, under the facts presented, increase of a tax on ice dealers from \$25 to \$300, and imposition of an additional tax

of \$100 for each wagon used in delivery, constituted an unreasonable and invalid imposition. It appeared that enforcement of the ordinance would give one association a monopoly of the local ice business, whereas there had been three dealers. The Court declared that it is now indisputably established by the decisions of this court that an occupation tax must be reasonable in amount and must not be discriminatory, confiscatory or prohibitive.

### **City Not Liable for Injury Caused by Garbage Collection Truck**

Treating the gathering of garbage as a governmental function, the North Carolina Supreme Court holds that a city is not responsible for injuries sustained by a pedestrian through being struck by a garbage collection truck belonging to the city and negligently driven. It is also decided that this ruling is not defeated by the fact that the city may charge fees for collecting garbage. (*James vs. City of Charlotte*, 112 Southeastern Reporter, 423.)

### **An Ordinance Requiring Prayer and Bible Reading in Schools Held Constitutional**

An ordinance of the city of Rome, Ga., provides that the board of education "shall require some portion of the King James version of the Bible, of either the Old or New Testaments, to be read and prayer offered to God in the hearing of the pupils of the public schools." The ordinance exempts from attendance on these readings and prayers any pupil whose parents so request on the ground of conscientious objections.

The validity of this ordinance was challenged before the Georgia Supreme Court in the case of *Wilkerson vs. City of Rome*, 110 Southeastern Reporter, 895. The Court, two of its judges dissenting, upholds the right of the city to require compliance with the ordinance by mandamus. It is decided that the ordinance is not unconstitutional as being in derogation of the right to freedom of conscience and freedom from taxation for sectarian purposes. The ordinance was mainly attacked as being contrary to the beliefs of Roman Catholics and Jews. The Court reviews at length decisions of the courts and declarations of the country's early statesmen. Mr. Justice Hines dissents from the opinion on the ground that the ordinance is subject to the objections urged against it in the suit.





# HOLLOWSPUN

## LIGHTING STANDARDS

**C**ONCRETE trolley poles have been extensively applied on the Pittsburgh Railways, particularly for curves and at other points of extreme service requirements. The first application of these Hollowspun poles was made over five years ago, and the fact that the orders are still coming in is the best evidence that the management believes in the permanence of these poles.

Permanence is also a most important characteristic of lighting standards, and city officials who are using the same business farsightedness as this railway company are choosing Hollowspun standards for their beauty and permanence.

More complete information regarding this installation is found in "Hollowspun Standard No. 5." A copy will be sent on request.

**MASSEY CONCRETE PRODUCTS CORPORATION**  
Peoples Gas Building Chicago



# Hints, Helps and Happenings

## Municipal News in Local Newspapers

THE proportion of the news in our daily papers which relates to city government is almost ridiculously small. As a whole, it is insufficient to give the public the information which it needs in order to pass intelligent judgments on municipal questions.

The explanation given by newspaper men for the failure to give more attention to the ordinary working of city government is that it is not news. The truth of this statement must be admitted. If, however, a knowledge of the working of city government is essential to its genuine democratic control; if newspapers are what no one will deny that they are—practically the sole vehicle to the public of information on this as on other matters, the conclusion seems inevitable that it is the duty of the newspapers to make the essential facts relating to city government news. When a newspaper is interested in a particular propaganda it has no difficulty in making it news. It should have none in performance of necessary public duty.

—Lida Rideout, B. A., in the Bulletin of the Bureau of Government, University of Michigan, for July, 1923.

## Cooperation of Near-by Municipalities

A UNIQUE organization of eleven cities and villages along Chicago's north shore, having an aggregate population of more than 100,000, considers matters of public affairs that are of mutual concern and makes recommendations which are valuable in determining public policy.

Representatives of the municipalities and villages are the mayors or presidents of the boards of trustees. Meetings are held when-

ever there are sufficient problems of general interest to call together this unusual group. Village ordinances concerning motor vehicle laws, fire protection, police problems, impending legislation in the state which directly concerns them, are some of the general issues that come before this group of officials, who call the organization The Association of North Shore Municipalities.

For almost a decade the Association has functioned efficiently, and its value to the important group of suburban communities on the western shore of Lake Michigan has been proved.

John S. Miller, Jr., President of the village of Winnetka, is President of the Association. There is a vice-president, a treasurer, a secretary, counsel, and all the mayors and presidents are directors. An executive committee of three mayors is charged with the task of watching the Association's program.

## The Motor-Cycle Officer a Potent Factor in Accident Prevention

ROBBERS, burglars, safe-blowers, payroll bandits, bank robbers, murderers and other crooks have recognized the

efficiency of motor vehicles, and in many instances they have been able to make their getaway while police have been lumbering along their beats in the old-fashioned slow-footed style, trying a few doors and peering into store-room windows.

Certainly, so far as traffic violations are concerned, the most potent deterrent is the presence of the motor-cycle officer, just behind the reckless driver and speeder. I am convinced, so far as the city of Cleveland is concerned, if we had an adequate license law for drivers providing for a strict mental and physical examination, and with 75 or 100 motor-cycle officers on the street day and night and with the

OFFICE OF THE  
City Commission of the City of Jacksonville  
JACKSONVILLE, FLORIDA

**TO THE OFFICERS AND EMPLOYEES  
OF THE CITY OF JACKSONVILLE**

—RULES FOR CONSIDERATION—

1. All of us, officers and employees, are paid from the Public Treasury. The PUBLIC, therefore, deserves respectful attention. LET'S EARN OUR PAY.
2. No service is worth while that is not cheerfully and courteously rendered. LET'S BE PATIENT AND POLITE.
3. Efficient service requires constant harmony between departments, and among all employees. LET'S MAKE "HARMONY" OUR MOTTO.
4. No work is properly done that is not promptly done. Delays are costly, and prevent proper service. LET'S DO TO-DAY'S WORK TO-DAY.
5. Orders of superior officers should be observed without grumbling. Responsibility will be placed where it belongs. LET'S MAINTAIN NECESSARY DISCIPLINE.
6. These rules apply to all of us, officers and employees, alike. LET'S BE A UNIT FOR THE GOOD OF THE CITY

Attest:  
E. P. OWEN, JR.  
Secretary

THOS. C. IMESON, Chairman  
ST. ELMO W. ACOSTA  
M. B. HERLONG  
FRANK H. OWEN  
FRED M. VALZ  
City Commissioners

THESE "RULES FOR CONSIDERATION" HAVE BEEN ADOPTED BY THE CITY COMMISSION OF JACKSONVILLE, FLA., AT THE SUGGESTION OF THE SECRETARY OF THE COMMISSION, E. P. OWEN, JR.



**L**ING MANUFACTURING CO  
ORNAMENTAL LIGHTING STANDARDS

230 South Clark St. Chicago USA

police prosecutors and courts cooperating in an efficient and courageous manner, that traffic accidents could be reduced from 25 to 50 per cent.

JUDGE ALVA R. CORLETT,  
Municipal Court, Cleveland, Ohio, before the National Safety Council.

## Parks in Forty-Eight Cities of 50,000 to 100,000 Population

IN connection with its recent successful campaign for a 304-acre recreation park (described in THE AMERICAN CITY for January, 1923) the Chamber of Commerce of Niagara Falls, N. Y., gathered information from forty-eight other cities having 50,000 to 100,000 population, from which the following table has been compiled:

City	No. of Parks	Total Acreage	How Acquired
Allentown, Pa. ....	5	39	
Altoona, Pa. ....	3	46	
Bethlehem, Pa. ....	3	106	
Binghamton, N. Y. ....	15	459	Gift and purchase
Canton, Ohio, ....	9	173	Gift and purchase
Charleston, S. C. ....	15	400	Gift and purchase
Chattanooga, Tenn. ....	8	204	Gift and purchase
Chester, Pa. ....	4	112	
Duluth, Minn. ....	53	745	Gift and purchase
East St. Louis, Ill. ....	18	1,360	Purchase
Elizabeth, N. J. ....	6	33	Gift and purchase
El Paso, Tex. ....	26	400	Gift and purchase
Erie, Pa. ....	10	317	Purchase
Evansville, Ind. ....	15	650	Gift and purchase
Flint, Mich. ....	16	650	Gift and purchase
Fort Wayne, Ind. ....	27	448	Gift and purchase
Gary, Ind. ....	6	60	Gift and purchase
Harrisburg, Pa. ....	8	1,053	Gift, pur. and lease
Jacksonville, Fla. ....	20	200	Gift and purchase
Johnstown, Pa. ....	6	41	
Kansas City, Kans. ....	26	300	Purchase
Lancaster, Pa. ....	7	32	
Lansing, Mich. ....	12	256	Gift and purchase
Lincoln, Nebr. ....	8	357	Gift and purchase
Long Beach, Calif. ....	10	160	Gift and purchase
Lynn, Mass. ....	8	2,400	Gift and purchase
Macon, Ga. ....	62	500	Gift and purchase
New Britain, Conn. ....	17	329.6	Purchase
Portland, Maine. ....	16	259	Gift and purchase
Racine, Wis. ....	8	228.5	Gift and purchase
Sacramento, Calif. ....	10	1,047	Gift and purchase
Saginaw, Mich. ....	14	320	Gift and purchase
San Diego, Calif. ....	23	1,921	Orig'l land grants
Schenectady, N. Y. ....	7	232	Gift and purchase
South Bend, Ind. ....	24	394	Largely by purch.
Springfield, Ill. ....	10	1,000	Purchase
Springfield, Ohio. ....	3	1,000	Gift and purchase
Tacoma, Wash. ....	8		Gift and purchase
Tampa, Fla. ....	8		Gift and purchase
Terre Haute, Ind. ....	15	520	Gift and purchase
Topeka, Kans. ....	18	299	Gift and purchase
Troy, N. Y. ....	6	260	Gift and purchase
Utica, N. Y. ....	15	650	Gift and purchase
Waterbury, Conn. ....	10	250	Gift and purchase
Wheeling, W. Va. ....	9		
Wichita, Kans. ....	11	335	Gift and purchase
Wilkes Barre, Pa. ....	11	300	Appropriation
Yonkers, N. Y. ....	8	29	Purchase

Additional details from many cities as to the original cost of the parks, tax rate for maintenance, the present equipment of the parks, etc., are given in a mimeographed report, a copy of which will be sent to any reader of THE AMERICAN CITY by the Niagara Falls Chamber of Commerce while the supply lasts. Attention is directed to the fact that the questionnaire on which this report and the foregoing table are based was mailed out in June, 1922, and the replies are therefore more than a year old.

## Suggested Slogans for American Education Week

AMONG the slogans officially suggested for American Education Week, which is to be observed this year November 18-24, under the joint auspices of The American Legion, National Education Association and U. S. Bureau of Education, are the following:

*Children to-day, citizens to-morrow*  
*No illiteracy by 1927—it can be done*  
*A godly nation cannot fail*  
*Ballots, not bullets*  
*Better-trained and better-paid teachers; more adequate buildings*  
*An equal chance for all children*  
*A square deal for the country boy and girl*  
*A sick body makes a sick mind*  
*Playgrounds in every community*

A program of suggested activities for each of the seven days of American Education Week may be secured on application to the National Education Association, 1201 Sixteenth Street, N. W., Washington, D. C.

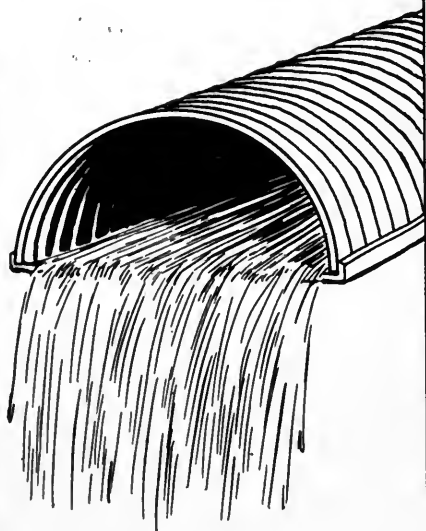
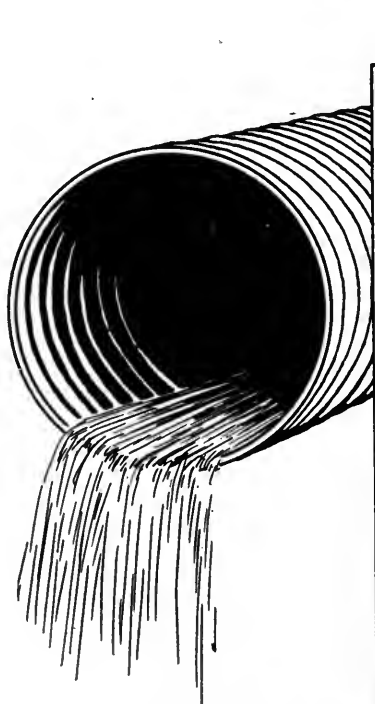
## Sermon of the Sign with a Wrong Emphasis

THE management of a newly-opened North Carolina resort found that its sign, "Don't Pluck the Water-Lilies," might as well have read, "Please Pull!" but when the notice was changed to "Pond Lilies for Sale," the depredations ceased.

This result was a reaction characteristic of the average American, who remains an individualist in spite of the theoretical bonds of innumerable laws. He resents the spirit of "Verboten." Say to him "Shan't!" and his answer is "Will!" Challenge him with "Don't," and he rushes to accept the issue. Ask him to aid in safeguarding life, liberty, or property, and he lends cheerful acquiescence. Assume the tone peremptory, and he is an equally cheerful rebel. The horde of rhetoricians preaching daily from the premise of "American lawlessness" could devise no better method than this of accusation to bring into contempt the very laws for which they plead.

Every state highway should be lined with trees, ornamental and useful. There should be nut- and fruit-bearers; there should be flowers, wild and cultivated. Orthodox objection is that the user of the highway would soon put the veto of destruction on any such program. He would do so only if tempted with the formula of "Don't" and "Can't." He would lend himself to the creation of a helpful and dominant public opinion, were the emphasis placed on the property value of the things lying at his hand to take, but left to his honesty to preserve. Similar appeal to a sense of property rights, to generous impulse, to innate love of beauty, would do much toward preventing forest fires, protecting bird and animal life, conserving innumerable natural resources.

# ENDURANCE



**E**NDURANCE is the ability to bear and continue in spite of destructive forces. In this respect Newport Culverts are pre-eminent in the culvert field. Made of **GENUINE, OPEN-HEARTH IRON** (99.875 % pure copper alloy), these culverts are the most rust-resisting on the market.

In strength, they have never been found wanting, for under the heaviest fills, with the greatest loads, they have carried the burden without deformation. They are guaranteed to last longer under identical conditions than any other corrugated metal culvert pipe.

Newport Culverts are made in full-round and half-round types, as illustrated, so that city, county and state officials may have a culvert adaptable to every condition.

Newport Culverts endure the ravages of time and rough usage for decades. Let us explain further why we thoroughly believe there is no better culvert made. Send us your name and address.

---

**Newport Culvert Company, Inc.**

542 West Tenth Street  
Newport, Ky.

The American is not Goth or Vandal, but neither is he modern Hun, to adopt a rule of conduct on no better authority than that it is an order.

—From *Natural Resources*, Chapel Hill, N. C.

## Akron Abandons City Manager Government

**A**KRON, Ohio, is the only large city in the United States to abandon the city manager plan of government, under which it has been operating since January 1, 1920. At the primary election on August 14, by a vote of 7,242 to 7,142, amendments to the home rule charter were passed, including one abolishing the office of city administrator and combining it with that of the mayor.

In the opinion of P. M. Burke, City Secretary of Akron, who discusses the matter in the September issue of the *City Manager Magazine*, the Akron vote cannot be considered a serious attack upon the principles of managerial government. Nor can it be considered as a reflection upon the present administration, and it is not taken as such. The fact that the charter amendments carried may be attributed to several reasons, including overconfidence upon the part of those supporting the government; the usual lack of interest upon the part of the people towards a primary election—only about 30 per cent of the registered voters having cast their ballots; the organized effort of the two political organizations in favor of the amendments; and the confused manner in which the amendments were presented to the electorate for voting.

## On the Calendar of Conventions

OCTOBER 1-5.—BUFFALO, N. Y.

*National Safety Council. National Safety Congress.* Secretary, W. H. Cameron, 168 North Michigan Avenue, Chicago, Ill.

OCTOBER 2-4.—WASHINGTON, PA.

*Pennsylvania State Association of County Commissioners. Annual convention.* Secretary, L. C. Norris, Clearfield, Pa.

OCTOBER 4-5.—SPRINGFIELD, MASS.

*Massachusetts Federation of Planning Boards. Annual meeting.* Secretary, Arthur C. Comey, Abbott Building, Cambridge, Mass.

OCTOBER 8-11.—BOSTON, MASS.

*American Public Health Association. Annual meeting.* Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

OCTOBER 8-12.—SPRINGFIELD, ILL.

*Playground and Recreation Association of America. Recreational Congress.* Secretary, H. S. Braucher, 315 Fourth Avenue, New York, N. Y.

OCTOBER 8-13.—NEW YORK, N. Y.

*National Fire Prevention Exposition.* One of the features of Fire Prevention Week. Address: Temporary Executive Headquarters, 25 East 26th Street, Room 1014, New York.

OCTOBER 10-12.—INDIANAPOLIS, IND.

*Indiana Municipal League. Annual meeting.* President, Eli F. Seebirt, Mayor, South Bend, Ind.

OCTOBER 15-17.—DETROIT, MICH.

*American Child Health Association. Annual meeting.* Secretary, Dr. Philip Van Ingen, 370 Seventh Avenue, New York, N. Y.

OCTOBER 16-17.—HARRISBURG, PA.

*Pennsylvania Commercial Secretaries Association. Annual meeting.* Secretary-Treasurer, Willis B. Morey, Chamber of Commerce, Lancaster, Pa.

OCTOBER 16-18.—HUTCHINSON, KANS.

*League of Kansas Municipalities. Annual meeting.* Secretary, John G. Stutz, University of Kansas, Lawrence, Kans.

OCTOBER 22-23.—CINCINNATI, OHIO.

*Ohio State Conference on City Planning. Annual conference.* Secretary-Treasurer, Charlotte Rumbold, 201 Chamber of Commerce Building, Cleveland, Ohio.

OCTOBER 23-26.—RICHMOND, VA.

*International Association of Fire Engineers. Annual convention.* Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.

OCTOBER 29-31.—CINCINNATI, OHIO.

*National Association of Commercial Organization Secretaries. Annual meeting.* Secretary-Treasurer, Joseph F. Leopold, 301 Crocker Building, Des Moines, Iowa.

NOVEMBER 8-11.—ST. LOUIS, MO.

*American Country Life Association. Annual conference.* Secretary, Henry Israel, Room 1849, Grand Central Terminal Building, New York, N. Y.

NOVEMBER 12-16.—ATLANTA, GA.

*American Society for Municipal Improvements. Annual convention.* Secretary, Charles Carroll Brown, P. O. Box 234, St. Petersburg, Fla.

NOVEMBER 13-15.—WASHINGTON, D. C.

*City Managers' Association. Annual convention.* Secretary, John G. Stutz, University of Kansas, Lawrence, Kans.

NOVEMBER 14-17.—WASHINGTON, D. C.

*Governmental Research Conference. Annual convention.* Secretary, Arch Mandel, Director, Dayton Research Association, Dayton, Ohio.

NOVEMBER 15-16.—HAMILTON, ONT.

*Ontario Associated Boards of Trade and Chambers of Commerce.* Secretary, T. Marshall, Toronto, Ont.

NOVEMBER 15-17.—WASHINGTON, D. C.

*Association of Urban Universities. Annual meeting.* Secretary, Dean Frederick B. Robinson, College of the City of New York, New York, N. Y.

NOVEMBER 15-17.—WASHINGTON, D. C.

*National Association of Civic Secretaries. Annual convention.* Secretary, Robert E. Tracy, 313 South Broad Street, Philadelphia, Pa.

NOVEMBER 15-17.—WASHINGTON, D. C.

*National Municipal League. Annual meeting.* Secretary, H. W. Dodds, 261 Broadway, New York, N. Y.

DECEMBER 1-3.—URBANA, ILL.

*Illinois Municipal League. Annual meeting.* Secretary, A. D. McLarty, Urbana, Ill.

DECEMBER 3-6.—NEW YORK, N. Y.

*American Society of Mechanical Engineers. Annual meeting.* Secretary, Calvin W. Rice, 29 West 39th Street, New York, N. Y.

DECEMBER 5-6.—WASHINGTON, D. C.

*National Civil Service Reform League. Annual meeting.* Secretary, H. W. Marsh, 8 West 40th Street, New York, N. Y.

DECEMBER 5-6.—WASHINGTON, D. C.

*National Rivers and Harbors Congress. Annual meeting.* Secretary, S. A. Thompson, 824 Colorado Building, Washington, D. C.

DECEMBER 7-8.—LAKEWOOD, N. J.

*New Jersey Sanitary Association. Annual meeting.* Secretary, Edward Guion, M. D., Bureau of Health, City Hall, Atlantic City, N. J.

DECEMBER 10-12.—NEW ORLEANS, LA.

*American Association of Port Authorities. Annual meeting.* Secretary, Tiley S. McChesney, Room 200, Court Building, New Orleans, La.

JANUARY 13-19.—CHICAGO, ILL.

*American Road Builders' Association. Annual convention.* Secretary, Ethel A. Birchland, 37 West 39th Street, New York, N. Y.

# Mechanical Strength



Boardwalk, Atlantic City, N. J.

**N**EXT to performance the most important consideration in the selection of street lighting globes is mechanical strength. The high powered lamps commonly used today generate great heat which is radiated to the enclosing globe. On a cold, stormy night the heat on the inside of the glass and the cold on the outside cause a strain which will crack globes of inferior quality. To withstand such severe service, as well as the destructive effects of rain, hail, snow or wind, Macbeth-Monax globes are carefully annealed or tempered, thus eliminating strains in the glass caused by unequal cooling. Globes which are not annealed properly break from the slightest mechanical shock because of the tension already existing in their texture. Macbeth-Monax are one-piece globes; therefore, they have greater mechanical strength than the multi-layer or cased glass, because the latter is made of two kinds of glass, each having different co-efficients of expansion, with the result that when subjected to changes in temperature these glasses expand unequally, causing strain which will frequently result in breaking the globe.

The process used in the manufacture of Macbeth globes makes it possible to produce them free from crizzles or tiny cracks in the fitter. This is important because these cracks eventually will enlarge and necessitate the replacement of the globes. The best evidence of the inherent construction of Macbeth globes, as well as the care used in their manufacture is found in a letter received from the Board of Commissioners of Asbury Park, New Jersey, who have been using Macbeth globes since 1914. Following is an excerpt from the letter:



"It is the low percentage of breakage which makes us use your make of globes, as they are sometimes exposed to a 60 to 80 mile gale and the most severe northeast storms."

Macbeth-Monax globes will save you money on your replacement bills. The breakage record of one installation showed a decrease from one globe a day to one a month when Macbeth globes were substituted for another kind of glass.

The most expensive method of buying globes is to purchase them by the dozen. The truly economical way is to buy them by the year. Macbeth-Monax globes bought on this basis are less expensive because they have the mechanical strength to withstand the most severe outdoor service.

**MACBETH-EVANS GLASS COMPANY  
PITTSBURGH**



Union Metal  
Lamp Standard



# Municipal and Civic Publications

*Prices do not include postage unless so stated*

**Manual of Information on City Planning and Zoning.**—By Theodora Kimball, Librarian, School of Landscape Architecture, Harvard University; Honorary Librarian, American City Planning Institute; Associate, British Town Planning Institute. Harvard University Press, Cambridge, Mass. 1923. IX + 188 pp. \$3.50 postpaid.

For those interested in city planning, the first part of this valuable book makes clear what city planning is, why it is essential, what cities and persons are active in its adoption and promotion, where one may read comprehensively concerning it, and how it may be secured for any municipality or region. The second part of the book contains the most comprehensive bibliography of city planning that has ever been published, arranged under classification headings, with a subject index. The volume is thus of great aid to city planning and zoning officials, to other municipal officials, landscape architects, members of civic and commercial organizations, engineers, architects, legal advisors, realtors, librarians, and progressive citizens generally.

**The Worker in Modern Economic Society.**—By Paul H. Douglas, Curtice N. Hitchcock and Willard E. Atkins. The University of Chicago Press, Chicago. 1923. XXXII + 929 pp. Charts, tables. \$4.65 postpaid.

An analysis of the position of the modern wage-earner and the part he plays in the modern economic scheme. It approaches the field of labor from the psychological and historical viewpoints, presenting basic researches and original expressions of controversial opinion. It investigates policies and methods advocated by various groups in industry to meet the conditions which directly concern them. The material is presented under seven large divisions: Human Nature and Industry; The Development of Economic Organization; The Worker in His Relation to the Market; Security and Risk; The Worker's Approach to His Problems; The Employer's Approach; The Community's Approach.

**The Commercial Secretary—Self-Training Functions and Relations.**—By William George Bruce, Former President, National Association of Commercial Organizations. The Bruce Publishing Company, Milwaukee, Wis. 1923. 180 pp. \$1.75.

For this little book the author, a former president of the National Association of Commercial Organization Secretaries, has written, or compiled from convention proceedings, much information of historical and practical value to experienced chamber of commerce secretaries and to beginners in civic-commercial organization work. The scope of the book is indicated by the chapter headings: The Nation, Community and Secretary; The Secretarial Beginner; Qualifications of the Secretary; Helpful Secretarial Literature; Public Speaking by Secretaries; The National Secretarial Body; What of the Secretarial Job?; An Efficient Commercial Organization; Secretarial Ethics and Procedure.

**Who Shall Teach?**—An investigation of the mental ability levels of county normal school students. By Walton B. Bliss, Assistant Director of Education, Ohio State Department of Education. Special Study Series of the Department, 1923, No. 4. Issued by Vernon M. Riegel, Superintendent of Public Instruction, as Director of Education. (Apply to the State Department of Education, Columbus, Ohio.)

**Summary and Comparative Study of the Special Courts in Chicago, Philadelphia, Boston, and New York.**—By George E. Worthington, Associate Director, Department of Legal Measures, American Social Hygiene Association, and Ruth Topping, Field Secretary, Bureau of Social Hygiene. 25 pp. Reprinted from the "Journal of Social Hygiene," June, 1923. With charts indicating how the procedure with women arrested for sex offenses varies in the four cities studied, and also with tabular comparisons of the four courts. (Apply to the Bureau of Social Hygiene, 370 Seventh Avenue, New York, N. Y.)

**The Theory and Practice of Organized Play.**—In two volumes. By Wilbur P. Bowen, M.S., Professor of Physical Education, Michigan State Normal College, Ypsilanti; and Elmer D. Mitchell, A.M., Director of Intramural Athletics, and Assistant Professor of Hygiene and Public Health, University of Michigan, Ann Arbor. A. S. Barnes and Company, New York. 1923. IX + 402 and 218 pp., respectively. \$2.40 and \$2.00, respectively.

The first of these volumes deals with the nature and significance of play, and the second classifies and describes play activities. A very comprehensive study of the subject, showing how play has come to be a public movement, what its various phases and activities are, and how to organize them and give them their proper place in education. The effect on successful citizenship is emphasized. A book for teachers and organizers. Bibliographies are given with the various sections, so that the reader's study may be further broadened if he desires.

**Description of Milwaukee's Activated Sludge Sewage Disposal Project.**—Published by the Sewerage Commission of the city of Milwaukee, 503 Market Street, Milwaukee, Wis. July, 1923. 16 pp. Map. Including a description of the structures and appliances. (Apply to publishers.)

**Birth Statistics for the Birth Registration Area of the United States, 1921.**—Seventh annual report of such statistics prepared by the Bureau of the Census. The birth registration area in 1921 included 27 states and the District of Columbia and had an estimated population of 70,425,705. 269 quarto pp. Tables, charts. Prepared under the direction of Dr. William H. Davis, chief statistician for vital statistics, assisted by John B. Mitchell, expert chief of division. Price, 35 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

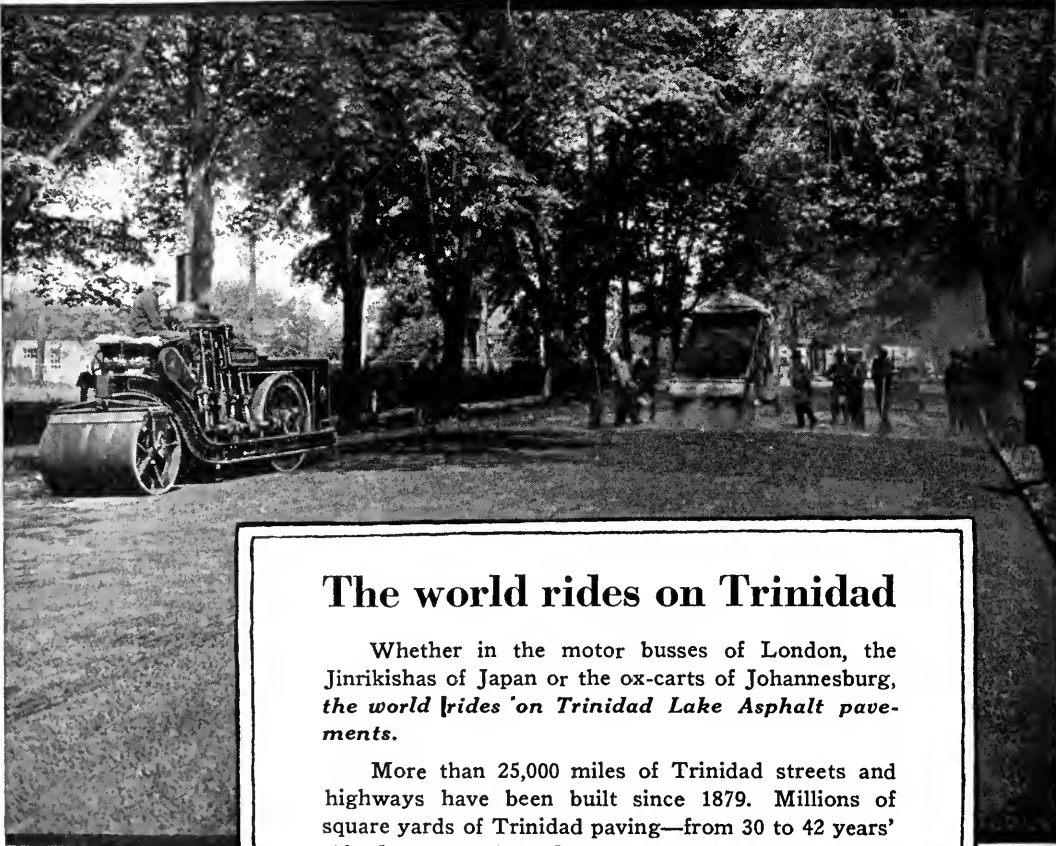
**Decline in Infant Mortality in the United States Birth Registration Area, 1915 to 1921.**—By Robert Morse Woodbury, Ph. D., Director of Statistical Research, Children's Bureau, U. S. Department of Labor. Reprinted from the May, 1923, issue of the "American Journal of Public Health," 8 pp. Tables. (Apply to the "American Journal of Public Health," 370 Seventh Avenue, New York, N. Y.)

**Light on Your City's Affairs.**—Bulletin issued by the Municipal League of Los Angeles, 326-27 Bradbury Building, Los Angeles, Calif. August, 1923. Volume I, Number 1. 4 pp. A means of reporting things as they are and thus stimulating the interest of the citizens in making the city safe and progressive. (Apply to the League.)

**The Welfare of Children in Bituminous Coal Mining Communities in West Virginia.**—By Nettie P. McGill. Publication No. 117 of the Children's Bureau. V + 77 pp. Views, tables. Based upon an investigation made in Raleigh County, W. Va., by Ellen Nathalie Matthews, Director of the Industrial Division of the Children's Bureau, the field work of which was directed by Ethel M. Springer. Showing what it means to a child's health, opportunities and general well-being when he is brought up in such a community. Price, 15 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**\$100,000,000 Expended by New Orleans for Publicly Owned and Controlled Utilities.**—By Carroll E. Williams, Editorial Staff, "Manufacturers' Record." Reprint from issue of June 14, 1923, "Manufacturers' Record," Baltimore, Md., to which apply. 16 quarto pp. Well illustrated. The story of the great port facilities of New Orleans.

**An Analysis of Ninety-Five Georgia County Jails.**—Published by the State Department of Public Welfare. 122 pp. Charts, tables. Covering all details of the administration and equipment of these jails, and closing with a digest of a suggested code of county jail laws. (Apply to Miss Rhoda Kaufman, Acting Secretary, Department of Public Welfare, 306 State Capitol, Atlanta, Ga.)



## The world rides on Trinidad

Whether in the motor busses of London, the Jinrikishas of Japan or the ox-carts of Johannesburg, *the world rides 'on Trinidad Lake Asphalt pavements.*

More than 25,000 miles of Trinidad streets and highways have been built since 1879. Millions of square yards of Trinidad paving—from 30 to 42 years' old—*have cost less than a cent per square yard per year for maintenance.*

Trinidad Lake Asphalt is a native bitumen—storm-beaten and weather-seasoned for Ages. It resists heat, cold, water and wear to a greater degree than any other bituminous paving material known.

Municipalities that buy street paving on the basis of investment—*not speculation*—use Trinidad exclusively. They know its value has been proved through nearly a half century of service on modern highways.

Write at once for booklet describing this remarkable, ages-old, ages-tested material.

### THE BARBER ASPHALT COMPANY

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New York Chicago Pittsburgh St. Louis Kansas City

WALL STREET,  
Kingston, N. Y.  
Laying Trinidad  
Lake Asphalt with  
an 8-ton Iroquois  
Roller.

# TRINIDAD LAKE ASPHALT

**Lectures on Engineering Practice.**—Three lectures given at the Johns Hopkins University, Baltimore, Md., in April, 1923. Edited by John B. Whitehead, Dean of the Faculty of Engineering. "The Relation of Highway Research to Modern Road Construction," by A. T. Goldbeck, Chief, Division of Tests and Research, U. S. Bureau of Public Roads; "Possibilities for Steam Railroad Electrification," by Norman Wilson Storer, General Engineer, Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa.; "Power Development—Past and Future," by George A. Orrok, consulting engineer, New York City. 90 pp. Illustrated. Price \$1. (Apply to the Johns Hopkins Press, Baltimore, Md.)

**Public Education Costs.**—Digest of a study prepared under the direction of the Committee on Education of the Chicago Association of Commerce, by N. B. Henry, formerly instructor, Department of Education, University of Chicago; at present a member of the Illinois staff of the Educational Finance Inquiry, and Professor of Education, Lewis Institute, Chicago. 1923. 29 quarto pp. Charts, tables. Indicating the probable necessity of modifying our public education policy in order to place it on a sound and practical basis. (Apply to the Chicago Association of Commerce, Chicago, Ill.)

**Suggested Regulations Regarding Density, Proportion of Curtilage to Be Built Upon, and Height of Buildings.**—By F. Longstreth Thompson, B. Sc., A. M. Inst. C. E. (member). Paper read at the Town Planning Institute meeting on June 8, 1923, with the discussion thereon. 34 quarto pp. (Apply to the Town Planning Institute, 11, Arundel Street, London, W. C., England.)

**Analysis of Laws Affecting Municipally Owned and Operated Public Utilities.**—Blue-print table compiled and prepared by Leo Kenneth Mayer, Director, American City Government League, 8 Adelphi Place, Brooklyn, N. Y., and Cornelius M. Sheehan, Deputy Commissioner of Water Supply, Gas and Electricity, New York City, and President of the League. Showing in what states the regulatory and supervisory powers of the public utility commission do not extend to public utilities owned and operated by municipalities in such states. (Apply to the Director of the League.)

**A Pageant of Portsmouth.**—In celebration of the Tercentenary of the first settlement in New Hampshire, spring of 1623. Written and produced by Virginia Tanner for the celebration, August 19-23, 1923. Acted, sung and danced by the citizens of Portsmouth and neighboring towns. The text and directions for the pageant, with the list of participants. 95 pp. Illustrated. (Apply to Miss Virginia Tanner, Cambridge, Mass.)

**Permanent Charity Fund, Boston Safe Deposit and Trust Company, Trustee.**—Activities of the administering committee of the Fund for the year ending June 30, 1923. This committee is an incorporated body, composed of seven citizens of Massachusetts familiar with charitable needs, no member of which can be a holder or seeker of political office or an adherent of the same religion as that of any two other members. 36 pp. (Apply to Charles M. Rogerson, Secretary of the Committee, 100 Franklin Street, Boston, Mass.)

**Pennsylvania City Planning Legislation, Assembly of 1923.**—Bulletin of the Association of City Planning Commissions, Cities of the Third Class. August 1, 1923. 10 mimeographed quarto pp. A brief memorandum of city planning bills that have been passed and approved. (Apply to Leo J. Buettner, Secretary of the Association, Johnstown, Pa.)

**Minneapolis Street Railway Appraisal.**—By Delos F. Wilcox. Volume I, General Report. Submitted June 5, 1923. 78 quarto pp. Maps, charts, tables. Report upon the value of the street railway property of the Minneapolis Street Railway Company and the operating conditions and expenses of the company, based upon an inventory of the property as of January 1, 1922; an investigation of the company's books, accounts and records, and an appraisal of the property as an operating system. (Apply to Delos F. Wilcox, 436 Crescent Street, Grand Rapids, Mich.)

**The Rockefeller Foundation.**—A review for 1922; a summary for the first decade. By George E. Vincent, President of the Foundation. 1923. 59 pp. Illustrated. Showing the progress made in the Foundation's activities in the field of public health and medical education. (Apply to the Foundation, 61 Broadway, New York, N. Y.)

**Newark's Own Health Record.**—"A Graphic Picture of Progress in Saving Life." Prepared by the Division of Vital Statistics, Department of Health, Newark, N. J. 16 pp. Original charts drawn by Elbert S. Ball. In 38 years the death-rate in Newark has been so reduced as a result of improved sanitation and public health that there are 4,000 fewer deaths each year, on the basis of the present population. (Apply to Charles V. Craster, M. D., Health Officer.)

**Employment Management in Municipal Civil Service.**—A committee report with comment pro and con. The August, 1923, number of "National Municipal Review." 29 pp. Presented by the Council of the National Municipal League simply to place the findings of the committee before the membership, and accompanied by articles and comment (43 pp.) which bring out differences of opinion regarding the civil service. (Apply to the National Municipal League, 261 Broadway, New York, N. Y.)

**Infant Mortality.**—By Elizabeth Hughes. Results of a field study in Gary, Ind., based on births in one year. Publication No. 112 of the Children's Bureau, U. S. Department of Labor. 1923. 122 pp. Map, charts, tables. The ninth in the Bureau's series of reports on infant mortality. Part of a general investigation of the welfare of infants and children of preschool age. The author was the supervisor of the local field work. (Apply to the Bureau, Washington, D. C.)

**Cedar Rapids, Iowa.**—Annual Report of the Department of Public Affairs for 1922-1923. (Apply to Charles D. Huston, Mayor.)

**Dartmouth, N. S.**—Annual Report of Town Engineer, covering years 1921 and 1922. (Apply to H. E. R. Barnes, Town Engineer.)

**Detroit, Mich.**—Eightieth Annual Report of the Public Schools for year ending June 30, 1923. (Apply to Frank Cody, Superintendent of Schools.)

**Fitchburg, Mass.**—Twenty-ninth Annual Report of Park Commissioners, for 1922. (Apply to G. A. Hubbard, Park Superintendent.)

**Fort Wayne, Ind.**—Eighteenth Annual Report of the Board of Park Commissioners, for the year 1922. (Apply to David N. Foster, President of the Board.)

**Lynchburg, Va.**—Annual Report of the City for fiscal year ending January 31, 1923. (Apply to Edward A. Beck, City Manager.)

**McPherson, Kans.**—Ninth Annual Report of the City Under Commission Government. 1922. (Apply to Ellen Lundstrom, City Clerk.)

**Minneapolis, Minn.**—Fortieth Annual Report, Board of Park Commissioners, for 1922. (Apply to Theodore Wirth, Superintendent.)

**Montreal, Can.**—Annual Reports of the City Treasurer and the Comptroller and Auditor for 1922. (Apply to P. Collins, Assistant City Treasurer.)

**Moose Jaw, Sask.**—Financial Statement for 1922. (Apply to George D. Mackie, City Commissioner.)

**Newark, N. J.**—Thirty-eighth Annual Report of the Department of Health, for 1922. (Apply to Charles V. Craster, M. D., Health Officer.)

**Newton, Mass.**—Annual Report of the City Engineer, 1922. (Apply to Edwin H. Rogers, City Engineer.)

**New York, N. Y.**—Twenty-fifth Annual Report of the Superintendent of Schools, for 1922-1923; Report of the Board of Examiners. (Apply to William L. Ettlinger, Superintendent of Schools.)

**Philadelphia, Pa.**—Twelfth Annual Report of the Art Jury of Philadelphia, for the year 1922. (Apply to John Frederick Lewis, President.)

**Regina, Sask.**—Financial Statement for 1922. (Apply to L. A. Thornton, City Commissioner.)

**St. Louis, Mo.**—Annual Report of the City Plan Commission for the fiscal year 1922-1923. (Apply to E. J. Russell, Chairman of the Commission.)

**St. Louis, Mo.**—Annual Report of the Division of Parks and Recreation of the Department of Public Welfare for the fiscal year ended April, 1923. (Apply to Fred W. Pape, Commissioner of Parks and Recreation.)

**Salem, Mass.**—Report of the Board of Park Commissioners for 1922. (Apply to Oliver G. Pratt, Superintendent of Shade Tree and Moth Suppression Departments.)

## IS YOUR CITY PLANNING MUNICIPAL MOVIES?

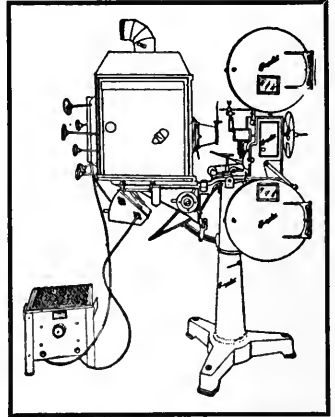
If so, it will pay you  
to inquire into the merits  
of the

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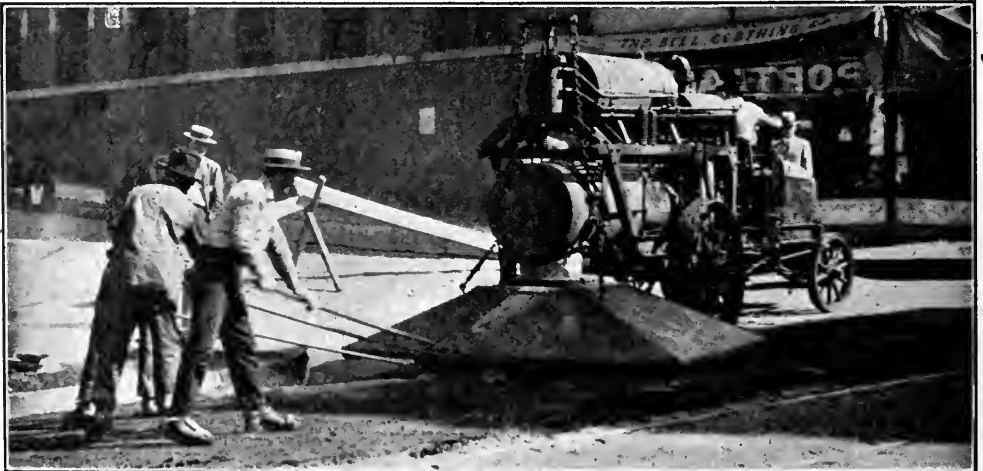
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## News and Illustrations

Items of Interest to City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

### Automatic Traffic Control in Grand Rapids, Mich.

Grand Rapids, Mich., is one of the first cities in the Middle West to make use of automatic traffic control for handling its vehicular traffic through the most congested intersections along Monroe Avenue, which is the main thoroughfare of the retail business district. Eleven intersections are being controlled from one central point, allowing traffic to flow along Monroe Avenue uninterruptedly for a given period of time, then opening traffic on all cross streets for a second period.

The control is designed so as to allow automatic operation or manual operation by a traffic officer stationed in the tower in which the control is located. Arrangements are also made so that in case of fire all traffic may be stopped to allow the passing of fire apparatus without hindrance at intersections.

The accompanying illustration shows the intersection at Fulton and Sheldon Avenues, with Monroe Avenue branching off to the right. This intersection was selected as one of the most difficult to handle and was used as the location for the trial installation of the mushroom traffic control system designed and built by the Essco Manufacturing Company, Peoria, Ill. The installation has been in service for several months with satisfactory results. During this trial the traffic officer was housed in the small booth shown at the left, the signal being directly under his control at that point. It was found that with this type of installation, traffic could be handled more easily and quickly and that the

traffic officer was better able to take care of emergencies than had been the case previously with the officer standing in the middle of the intersection and handling traffic by whistle and arm signals.

### Changes in Gamewell Organization

The Gamewell Fire Alarm Telegraph Company, Newton Upper Falls, Mass., has announced that the increased interest in fire and police signal systems has made it necessary for them to provide additional service facilities throughout the country.

E. E. Salisbury, head of the Police Signaling Department for many years, is now located in Chicago, so that better service may be given to the Central West. He continues as head of the Department. Leonard Dawson, who has done much development work on police apparatus during his 30 years with the company, is now available for surveys and engineering information in New England and Middle Atlantic States. A. H. Cross, Sales Engineer in charge of the Industrial Department, has established headquarters at the factory at Newton Upper Falls, Mass. Two additional representatives have been added to this department, F. N. Adams, with an office in Chicago, and F. H. Wright, located at Pittsburgh. H. I. Turner has been made Construction Engineer.

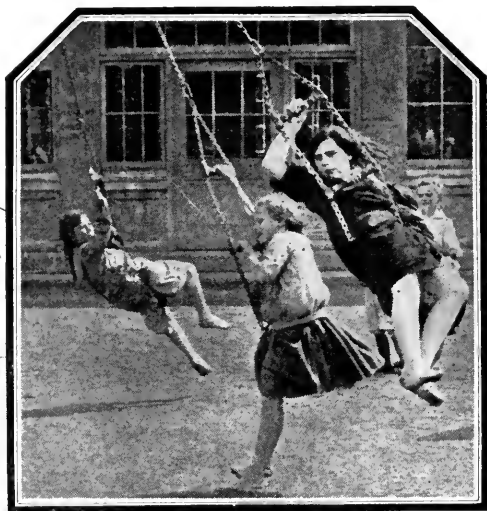
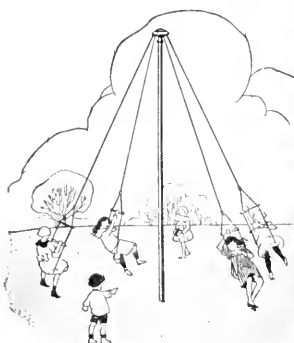
### Flushing Units for New York and Montreal

In 1920 the city of New York purchased 75 South Bend flushing units made by the Municipal Supply Company, South Bend, Ind., mounted on White 5-ton trucks. These outfits, after a couple of years' service, have continued so successfully that in July, 1923, an order was placed with the White Company, Cleveland, Ohio, for 50 5-ton trucks to be equipped with South Bend flushers.

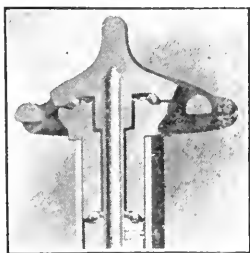
The city of Montreal purchased 8 South Bend flushing units on White 5-ton trucks, after a Committee had been sent to New York to investigate all types of motor flushing trucks.



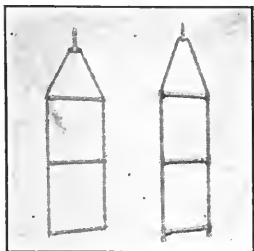
SUSPENDED "STOP-AND-GO" SIGNAL IN GRAND RAPIDS, MICH.



## Safety, Service and Durability are Exemplified in the Medart Giant Stride



Twenty-five ball bearings at top and thirteen below afford a frictionless, indestructible bearing.



Medart Giant Strides are equipped with steel ladders. Rope ladders can be substituted at slight additional cost.

Each piece of MEDART Playground Apparatus has some outstanding features in design and construction which make for greater Safety, greater Service and greater Durability. For example, in the MEDART Giant Stride, the most important feature is the head-piece. It is made with a double set of ball bearings—25 balls at the top and 13 below. This construction allows it to turn smoothly without friction—resists wear—and equalizes the strain no matter from what angle applied.

## MEDART PLAYGROUND EQUIPMENT

As a consequence of such features of recognized superiority, MEDART Equipment has been, for 50 years, the first choice of civic officials, physical directors, school boards, and others entrusted with the purchase of playground apparatus. MEDART prices are much lower than you would expect for apparatus of such outstanding merit.

**Send for Catalog M-6**

It illustrates the full line of Medart Playground Equipment. Also contains information on playground planning, based on our long experience in this work. This catalog sent free on request.

**FRED MEDART MFG. CO.**  
Potomac & DeKalb Sts. St. Louis, Mo.

Also Manufacturers of Steel Lockers. Catalog A-3 on Request.





A CAR-LOAD OF PLAYGROUND EQUIPMENT BOUND FOR THE CITY OF MEXICO

### Export Shipments of Playground Apparatus

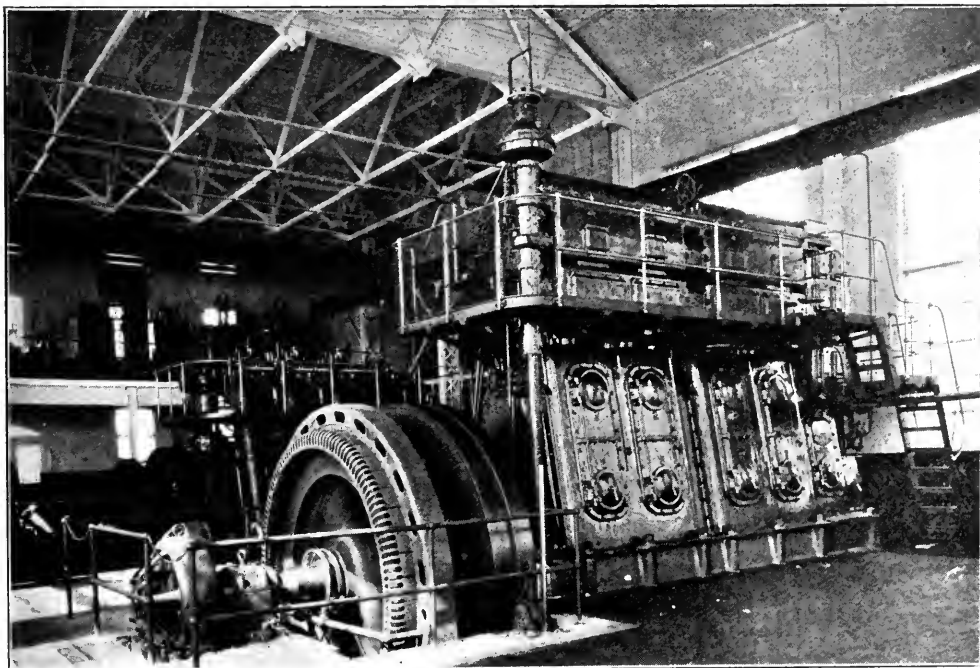
The illustration reproduced above shows a large shipment of Fun-Ful playground apparatus made by the Hill-Standard Company, Anderson, Ind., leaving its Kokomo, Ind., factory for Mexico City. This is the third shipment which has been sent to Mexican cities.

Hawaii and the Philippines have recently made large purchases of playground equipment through the Hill-Standard Company, and South American playground specialists have shown their approbation of Fun-Ful playground equip-

ment by awarding the Gold Medal for playground equipment at the Brazilian Centennial Exposition held at Rio de Janeiro, to the Hill-Standard Company.

### Esco Moves Chicago Office

The Esco Manufacturing Company, Peoria, Ill., has announced the removal of its Chicago office to Room 805, 118 North La Salle Street. This company manufactures the well-known Mushroom traffic light and Mushroom "Stop-and-Go" traffic control system. H. D. Oakland is the Chicago Manager.



DIESEL ENGINES INSTALLED IN THE POWER-PLANT OF THE VILLAGE OF FREEPORT, N. Y.

Foreground, Busch-Sulzer Diesel engine installed in 1922. Background, 365-b.h.p. Diesel engine installed in 1920





## ALUNDUM SAFETY TILE MAY SOLVE YOUR STAIRWAY PROBLEM

**I**T makes stairways slip-proof and increases life of each tread.

The Metropolitan Railway Company of London, England, recognizes the economy of equipping station stairways with this Norton Product. Alundum Safety Tile has solved the problem at Wembley Park Station shown here.

For stairways in railroad stations and subways, for ramps and floors around dangerous machinery, in places where foot traffic is heavy and there is the slipping hazard, Alundum Tile will solve the problem.

### NORTON COMPANY

Worcester, Mass.

NEW YORK

CHICAGO

DETROIT

PHILADELPHIA

NORTON COMPANY OF CANADA, LIMITED

Hamilton, Ontario

T-30

## A General Utility Street Department Truck

The new combined Auto-Eductor and flusher sold by the Elgin Sales Corporation, 501 Fifth Avenue, New York City, is a compact machine which, without cumbersome attachments, is a street flusher and sprinkler, and a catch-basin cleaner, and may be used as an emergency pumper at fires, a tree sprayer, a sidewalk flusher, a cesspool cleaner or as an ordinary motor truck subject to all truck uses such as attaching to snow-plows or general hauling.

This machine can be used the year round and day and night if desired. It may be used during the day for cleaning catch-basins and at night for flushing, or on hot days for sprinkling pavements, in the fall for ordinary trucking, and in winter for trucking and snow removal. This outfit may be fitted to any 5-, 6- or 7½-ton standard motor truck that is furnished with an adequate power take-off. In catch-basin cleaning this combination machine employs an Otterson patent Eductor.

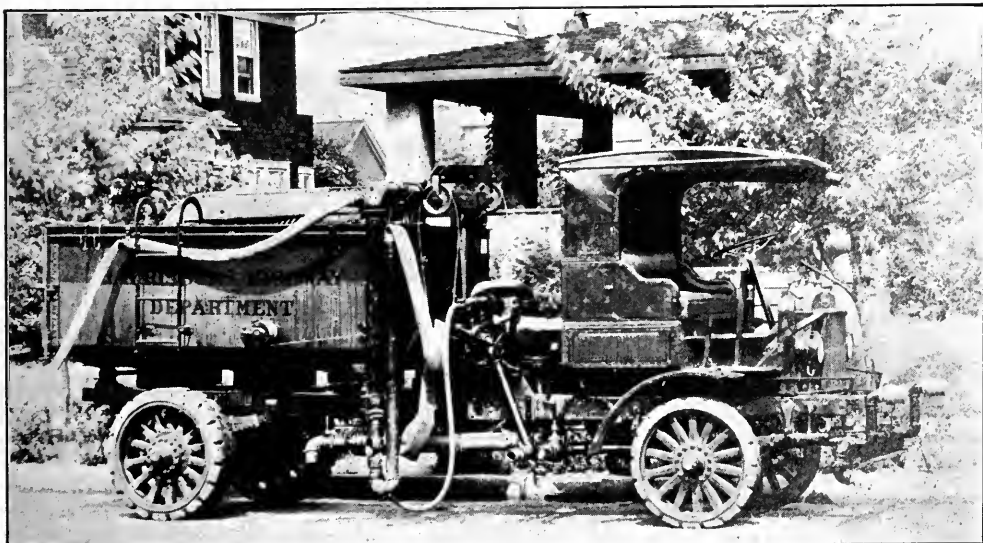
Some 50 cities to-day are using the machine solely for catch-basin cleaning, and some cities have several Auto-Eductors on this service. The manufacturers claim that as against an average cost of \$4.28 per cubic yard for cleaning catch-basins by hand, including hauling to the dump, the Auto-Eductor does the work at an average cost of \$1.53 per cubic yard. These machines have cleaned basins in from 3 to 11 minutes, with an average of 6.8 minutes. In one case a basin 9 feet deep and 4½ feet in diameter, full of heavy dirt and mud to the outlet, was cleaned in 8 minutes.

The "South Bend" flushing equipment by itself includes pipe, fittings, hangers or fasteners, and four nozzles, two in front and two just ahead of the rear wheels, with the necessary valves and control levers. The body

holds 1,200 gallons, so that when the truck is operating at 4 miles per hour, it will flush approximately 1,200 lineal feet with two nozzles, 2,000 feet using one, and clean a street 20 to 25 feet in width using the two nozzles, or 12 to 14 feet using one. In light work the speed may be increased, thereby making it possible to cover a larger yardage. In securing water from a hydrant having 60 pounds pressure, it takes about 3 minutes to fill the tank, not including the time for coupling and uncoupling the filling hose. With an experienced operator the machine will require six fillings per hour.

Sprinkling with this machine is controlled from the driver's seat by nozzles placed in front of the machine, so arranged that either or both nozzles may be closed as desired, when passing cars or going over crosswalks. For sprinkling work alone it is claimed that the machine displaces six horse-drawn sprinklers. On dirt streets sprinkling is often a necessity. No matter where used in the summer-time, it cools the street and settles the dust. Sprinkling if undertaken before flushing increases the efficiency of flushing, as sprinkling softens the dirt which flushing is required to remove. For dirt roads the usual speed should not be more than 5 miles per hour when sprinkling, and this machine will cover approximately 1,800 lineal feet 40 feet wide without refilling. On paved streets a greater speed can be used, thus increasing the number of lineal feet covered without refilling.

Cities may also use the Auto-Eductor for ordinary trucking by merely removing the baffle plates and piping which is attached to the body. The transformation requires very little time. If a liquid solution which does not require agitating is used for spraying trees, the Auto-Eductor may be used for this service. It may also be used for flushing sidewalks with water.



A STREET FLUSHER, SPRINKLER AND CATCH-BASIN CLEANER MOUNTED ON AN AUTOCAR CHASSIS, AS USED BY THE HARRISBURG HIGHWAY DEPARTMENT



# General Motors Trucks

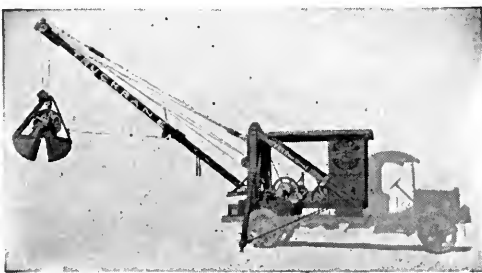
The increase in sales of GMC Trucks among Municipal, County and State Governments, is an indication of the superior performance given by these powerful, economical hauling units.

## GENERAL MOTORS TRUCK COMPANY

*Division of General Motors Corporation*

**Pontiac, Michigan**

DEALERS AND SERVICE STATIONS IN MOST COMMUNITIES



## TruckCrane

**Y**OU can speed up that material handling job of yours by using a sturdy, speedy TruckCrane.

TruckCrane is a small but powerful industrial crane equipped with its own 35-H.P. gasoline motor. It is furnished ready for mounting on any 5-ton, or larger, truck chassis measuring 9 feet 6 inches or more from center of rear axle to the back of driver's seat.

Send for our new bulletin and get the whole story.

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Vol. XXIX  
No. 5

NOVEMBER  
1923

# The American City Magazine

443 Fourth Ave.  
NEW YORK

50 Cents  
\$4 a Year

## The Ghost of the Dog with a Bad Name

Back in 1890 Andrew D. White wrote:

"Without the slightest exaggeration we may assert that, with very few exceptions, the city governments of the United States are the worst in Christendom—the most expensive, the most inefficient, and the most corrupt. No one who has any considerable knowledge of our own country and of other countries can deny this."

Two years earlier James Bryce in "The American Commonwealth" had said:

"There is no denying that the government of cities is the one conspicuous failure of the United States. The deficiencies of the national government tell but little for evil on the welfare of the people. The faults of the state governments are insignificant compared with the extravagance, corruption, and the mismanagement which mark the administrations of most of the great cities."

These and other quotations which gave to municipal government in America a bad name—doubtless deserved in the nineteenth century—have been resurrected by Lamar T. Beman and reprinted in imposing array in a chapter on "The Evils in American City Government" in his recently published *Handbook on Current Problems in Municipal Government*. The ghost of a thoroughly cursed dog who has had his day has been conjured up with an appearance of naïve and almost joyous belief that his name and character are about as bad as ever.

That the dog should be canonized and that all of the evils decried by the publicists of two or three decades ago have now disappeared, no sane student of municipal affairs can claim. But no one with open eyes and mind can fail to recognize the fact that, in honesty and efficiency of administration and in real service to the people, municipal government has on the whole made notable progress in the last quarter-century, and especially in the last ten years. Unfortunately, neither Ambassador White nor Viscount Bryce is now living to speak for himself, but in his "Mod-

ern Democracies," published in 1921, Mr. Bryce welcomed the new day in America in the following words:

"No Englishman who remembers American politics as they were half a century ago, and who, having lived in the United States, has formed an affection as well as an admiration for its people—what Englishman who lives there can do otherwise?—will fail to rejoice at the many signs that the sense of public duty has grown stronger, that the standards of public life are steadily rising, that democracy is more and more showing itself a force making for ordered progress, true to the principles of liberty and equality from which it sprang."

From five of the well-known writers quoted in Mr. Beman's chapter of "Evils," *THE AMERICAN CITY* has received recent letters quotations from which appear opposite the old quotations in the parallel columns below:

*A. Lawrence Lowell, President, Harvard University:*

(1913)  
"The defects of American methods are most obvious in municipal government, for our failure there to attain anything approaching our ideal of democracy is beyond question."

*J. Allen Smith, Professor of Political Science, University of Washington:*

(1907)  
"It would be perfectly reasonable to expect that popular government would reach its highest development in the cities. . . . But in this country the most glaring abuses and most conspicuous failures of government occur in the cities."

(1923)  
"Of late years there has certainly been a decided improvement in many of our city governments; but reformers must by no means relax their efforts."

(1923)  
"The book from which the quotation was taken was published in 1907. Taking it out of its context it might give the impression that my opinion concerning municipal government was very unfavorable indeed. This conclusion, however, would not be correct, as I think a careful perusal of the chapter on municipal government in that book will show. I do not claim to have made a special study of municipal government, but it is my belief that its so-called evils are to be attributed very largely to unwise and unjust state interference."

*Frank J. Goodnow, President, Johns Hopkins University:*

(1895)

"As compared with the larger and best-governed European cities, the larger and best-governed American cities have been in the past, and are, although to a less degree, in the present, unwisely, inefficiently, and extravagantly administered."

(1923)

"Since I made the statement quoted there has undoubtedly been a great improvement in American municipal conditions, which probably would make it necessary to qualify somewhat what I once said. I still, however, am of the opinion that the English city is much more efficiently governed than are most cities in the United States. I ought, however, to say that during the last ten years my administrative work connected with the University here has made it impossible for me to keep up my work along municipal government lines."

*Joseph Dana Miller, Editor, The Single Tax Review:*

(1914)

"The government of many of our cities is given up to as conscienceless a gang of rascals as ever in falling Rome plundered a Christian temple. These cities offer a spectacle which is the despair of many who are the real friends of popular institutions. The decent citizen who would preserve his character cannot enter into the degrading and vulgar competition for civic honors. He cannot associate with the noisy demagogues, whose professed love for the people is the hollowest mockery of honest poverty, upon which evil and corrupt municipal government imposes burdens almost heavier than it can bear."

(1923)

"I am of the opinion that there has been an improvement in the character of city government since the date of my article. More attention has been paid to municipal problems and cures for the evils of city government. But much more remains to be done. There can be no improvement in government of cities until citizens are thrown more largely on their own responsibility and cities cease to be governed by alien influences from state capitals."

*Ellis P. Oberholtzer, Secretary, The Transatlantic Society of America:*

(1908)

"The city governments are far below the standard which we have established for private business; a proposition which needs no statistical support. Nowhere is there a successful private enterprise managed so extravagantly, incompetently, and lawlessly, in a moral sense, as are our municipal governments."

(1923)

"The general denunciation of the flagrant evils attending city management which followed revelations by men like Bryce in 'The American Commonwealth' and Godkin, brought out a number of young men from the colleges who, slow and small as their achievements may have seemed, did put an impression upon public opinion leading to some betterment of conditions. 'Home rule,' smaller councils, commissions, managers, budgets, civil service rules, and the existence in each community of a considerable body of men ready to watch conditions and to condemn wrong have in some degree put the fear of God into the people

who follow politics for their own gain. We are not likely ever again, in my belief, to see such unprincipled and reckless overriding of our decent social and political sentiments in the conduct of the common business in our great cities."

In addition to President Lowell, Harvard University is represented in Mr. Beman's quotations by two others of its leading thinkers—President Emeritus Charles W. Eliot and Professor William B. Munro. Of these two, Dr. Eliot's reply to THE AMERICAN CITY'S inquiry was less optimistic than any other answer received. In 1907 Dr. Eliot had written in the "World's Work":

"Municipal government in the United States has nowhere been successful, and in many places it has been so corrupt and inefficient as to suggest to anxious minds the ultimate failure of free institutions."

He now writes to THE AMERICAN CITY:

"I am always hoping that the advance of knowledge among the American people concerning an effective civil service, the budget system, and the indispensableness of experts in administrative functions will bring about the much needed reforms in municipal governments; but I must confess that that hope suffers from frequent deferments."

Dr. Munro, on the other hand, as Professor of Municipal Government for nearly two decades, has perhaps had a better opportunity than the President Emeritus to study the municipal progress of recent years. In 1912 he had written:

"No business organization could reasonably hope to keep itself out of the hands of a receiver if it had to do its work with any such clumsy and complicated machinery as that which most American cities have had imposed upon them."

Contrast the foregoing paragraph with the following from Dr. Munro's new two-volume work on "Municipal Government and Administration," just published:

"America is now furnishing the world with its best laboratory of municipal experimentation. Europe has as much to learn from us, in this branch of popular government, as we now have to learn from Europe. It was not so a generation ago, and the fact that the situation has so greatly changed may be looked upon as a tribute to the striking progress which American cities have made in the structure of their governments, in their administrative machinery, and in the efficiency of their business methods during the past quarter of a century. There are, indeed, some branches of municipal administration—such as public health, public recreation, public lighting, education, and fire protection—in which the more progressive among American cities need no longer pay any deference to their prototypes across the sea."

As Dr. Munro well says, in another chapter of his new treatise, summarizing the progress of American municipal government during the last quarter of a century, "A record of that sort gives no ground for pessimism."

# Municipal Purchasing Methods and Forms in Bluefield, W. Va.

By Harold G. Schutt

WITH the advent in Bluefield of the city manager form of government in September, 1921, a central purchasing bureau was established in the City Manager's office, and the Assistant City Manager was placed in charge. The following forms and procedure have since been developed and are in present use. When the various forms were first put into operation, a bulletin was sent to each prospective user stating in detail what each space was for and giving a general outline of the procedure, so that the object of the form could be seen and thus, in some measure, prevent its use being purely mechanical.

Any department wishing any purchase made or service obtained makes requisition for it to the Assistant City Manager on the form shown (Figure 1). The requisitioning department retains a carbon copy. The space below the lower double line is for the

CITY OF BLUEFIELD, W. VA.		REQUISITION NO.
PURCHASE REQUISITION		DATE
DEPARTMENT	BUREAU	BY
PLEASE ISSUE AN ORDER FOR THE ARTICLES OR SERVICES DESCRIBED BELOW		
POINT OF DELIVERY: ON OR BEFORE		
NAME AND TITLE OF PERSON TO RECEIVE GOODS		
PURPOSE FOR WHICH REQUIRED (DESCRIBE FULLY)		
PERSON TO BE CHARGED WITH CUSTODY		
QUANTITY-UNIT-DESCRIPTION OF ARTICLE OR SERVICE	UNIT	REMARKS
LIST BELOW NAMES AND ADDRESSES OF POSSIBLE CONTRACTORS OR VENDORS		
I HEREBY CERTIFY THAT THE WORK OR SUPPLIES SPECIFIED ARE NECESSARY FOR THE PROPER OPERATION OF THIS DEPARTMENT		
APPROVED	APPROPRIATION CODE	DATE OF ORDER
THIS FORM IS TO BE USED BY DEPARTMENT HEAD ONLY AND MUST BE RECEIVED BEFORE ANY ORDER CAN BE WRITTEN		ORDER NO.

FIG. 1. PURCHASE REQUISITION FORM

City of Bluefield, W. Va.	
REQUEST FOR QUOTATION	
THIS IS NOT AN ORDER	
TO	By letter, please mention Division No. 105
	Or if by telephone, call
PLEASE ENTER HEREON YOUR QUOTATION OF THE MATERIAL LISTED BELOW, and return to the City Manager's office not later than	
1. Should you be unable to furnish same according to our specifications and wish to offer a substitute, please state details, reserving the right to accept or reject your proposal.	
2. All material furnished must conform with our specifications, and if not, same will be held at your risk awaiting disposition, shippers paying all transportation charges both ways on all rejected material.	
3. Shipment of material desired by	
Following prices F. O. B.	
One make shipment.	
TERMS	
QUANTITY	ARTICLES AND DESCRIPTION
	LIST DISCOUNT NET
CITY OF BLUEFIELD. Submitted by	
CITY MANAGER Per	

FIG. 2. REQUEST FOR QUOTATION FORM

use of the Purchasing Agent when he writes orders covering the articles requisitioned. In case there are time and necessity for doing so, quotations are secured on a standard form (Figure 2). The Purchasing Agent retains a copy of all requests for quotations that are sent out. In a certain number of cases, especially for supplies, where goods are bought from one of two or three local firms, the person making the requisition furnishes quotations from these concerns.

When it has been ascertained where the purchase can be made most advantageously, a purchase order is written (Figure 3). This order is written in triplicate; the original, on white, is given to the vendor, and the duplicate, on pink, is given to the department making the requisition, but the carbon paper is cut so that on the pink sheet the "quantity" column and "amount" col-

umn are not filled out. A third copy, on yellow paper, is kept by the Purchasing Agent.

When the goods are received, the receiving department fills in the "quantity" column and certifies in the space provided at the lower left-hand corner that the goods have been received and are for the sole benefit of the city. This pink copy is then returned to the Purchasing Agent, who files it just back of his copy of the order in a loose-leaf binder.

When invoices are received, they are sent to the City Manager's office, and the Assistant City Manager (Purchasing Agent) looks up the pink copy of the order. If this has been returned to him with receipt of goods certified, he attaches the invoice and pink sheet together, marks the cost distribution on the invoice and sends them to the City Clerk, who draws a voucher warrant for the proper amount. When the invoice is sent to the Clerk, a small check is put on the yellow copy of the order at the bottom, to show that an invoice covering the order has been passed for payment. When the voucher warrant is returned to be signed by the City Manager, the number of the voucher is put in the place which is provided on the yellow copy. This completes the transaction, with one possible exception. Sometimes it will be desirable to pay an invoice covering part of an order before the whole order is filled. Since the pink copy of the order is not returned until the order is complete, the Purchasing Agent will have to inquire regarding the receipt of the goods which are invoiced, and in passing such an invoice for payment he should mark in the "memo" column of the yellow copy of the order the items which are being paid for. When additional invoices are paid, the other items can be similarly marked, and the pink copy should be sent to the Clerk with the last invoice. When the whole order is covered by one invoice, it is unnecessary, of course, to mark the individual items, the presence of a voucher number at the bottom indicating that such has been the case. Care should be taken to see that these voucher num-

**CITY OF BLUEFIELD, W. VA.**  
PURCHASE ORDER

ORDER No. 4085

ACQUISITION NO. \_\_\_\_\_

INVOICES NO. \_\_\_\_\_

TO \_\_\_\_\_

AT \_\_\_\_\_

PLEASE FURNISH THE FOLLOWING SERVICES OR SUPPLIES

SEND ALL INVOICES TO CITY MANAGER'S OFFICE BLUEFIELD, W. VA.  
VENDORS MUST RECEIVE CONFIRMATION ON THIS FORM OF ALL ORDERS OTHERWISE RECEIVED

	QUANTITY	UNIT	DESCRIPTION	PRICE PER UNIT	AMOUNT	MEMO
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

**CITY OF BLUEFIELD, W. VA.**  
By \_\_\_\_\_

THIS COPY OF ORDER TO BE RETAINED BY VENDOR

I CERTIFY THAT THE SERVICES OR SUPPLIES AS ORDERED ABOVE HAVE BEEN RECEIVED AND ARE TO BE USED SOLELY FOR THE BENEFIT OF THE CITY.

CITY OF BLUEFIELD, W. VA.  
By \_\_\_\_\_

CERTIFY AND RETURN TO PURCHASING AGENT PROMPTLY AFTER RECEIPT OF GOODS

PAID BY VOUCHER NO. \_\_\_\_\_

CITY OF BLUEFIELD, W. VA.  
By \_\_\_\_\_

THIS COPY OF ORDER TO BE RETAINED BY PURCHASING AGENT

FIG. 3. PURCHASE ORDER FORM, IN TRIPPLICATE

bers are entered on all orders which they affect, because it greatly facilitates looking them up when any question arises.

The system above outlined guards against paying a bill twice. If the pink copy of the order is not in place, it has either been sent to the Clerk's office with an invoice indicating that the order has been paid, in which case there will be a voucher number shown on the yellow copy (or at least a check mark showing that the invoice has been sent to be paid, but the voucher not yet drawn), or the pink copy has not yet been returned to the Purchasing Agent by the receiving department.

A purchase record card is also kept (Figure 4). The card is almost self-explanatory as to its use; the invoices are posted to these cards at the time they are paid. A card is kept for each commodity, and a glance shows amounts bought and trend of prices.

The Purchasing Agent also has charge of the property and equipment record cards



Sometimes invoices will be received without having any city order number noted. If the company is one with which the city is likely to have much dealing, it may be well to return the invoice with request that the company give the order number. There-

[illegible][illegible]

In a larger city, and especially a city in which invoices go directly to the Clerk's or Auditor's office, it might be best to have an "Advise of Receipt of Goods" form on which the receiving department would notify the Clerk and Purchasing Agent of the receipt of goods. These officials, upon receiving such a form, would check the items on their copies of the original order, it being necessary in this case for the Clerk also to have a copy of the order. It would be well to continue to give the requisitioning department a copy of the order. With this procedure, the city should ask for invoices in duplicate, one copy to be given to the Purchasing Agent for his information.

# The Successful Campaign for Snow Removal in Berkshire County

Towns Marooned by Snow-Drifts for Three Months Are Made Accessible by Use of Hand Labor and Trucks and Tractors Equipped with Plows

By Clarence J. Biladeau

Secretary, Automobile Club of Berkshire County, Pittsfield, Mass.

**B**ERKSHIRE COUNTY, in western Massachusetts, is generally blessed with plenty of snow during the winter, and the usual winds whip the snow into large drifts, which seem invariably to select state highways as their resting places. The Automobile Club of Berkshire County publicly advocated keeping open the main trunk lines of the county during the winter months, but at first little attention was paid to the suggestion. The officials of the club decided to show the public that such an undertaking was feasible. They secured from the State Department of Public Works of the Commonwealth of Massachusetts iron snow-plows, which members of the club attached to their trucks. It was found that these plows could keep the highways open in ordinary storms, providing the trucks were kept going during the storm, but that they would not make any noticeable impression on the drifts which are common in the Berkshire Hills.

One of the members purchased a 5-ton

tractor with a straight iron plow attached to it, to keep a certain highway open during the winter months so that a bus line which he owned could be kept in operation. During the winter of 1922, the main highway between Pittsfield, Mass., and Albany, N. Y., became closed to traffic because of the snow and there was one place having an 8-foot drift across the highway. The club officials felt that this was an opportune time to show the public just what could be accomplished with tractors, so arrangements were made with the owner of the tractor to go to Lebanon Mountain, one of the barrier of hills between the two cities, and open up this stretch of road. Many citizens availed themselves of the opportunity of seeing the tractor in operation and, after a few hours' work, the way was opened to traffic. This demonstration was an eye-opener to many automobile owners, and the result was that the County Commissioners of Berkshire gave three public hearings to the citizens of the county on the advisa-



**HAND SHOVELERS WORKING ON THE CURVE AT THE TOP OF MOUNT LEBANON, GOING DOWN TOWARD ALBANY, N. Y.**

It was almost an impossible task that these men undertook, as layer after layer of ice and hard crusted snow, which in places would hold a car without breaking through, had to be cut through with picks



DRIFTS WHICH A TRACTOR CONQUERED ON THE PITTSFIELD SIDE OF LEBANON MOUNTAIN

bility of purchasing tractors to keep the roads open. At these hearings, held one in the north, one in the central, and one in the southern part of the county, citizens appeared before the Board to give their views on the subject of snow removal. There was practically no opposition to the project, because of the foresight of the Commissioners in suggesting at these hearings that the county appropriate about \$40,000 extra to be used on secondary highway work, so that farming and hill town districts would receive this additional benefit to balance the benefit accruing to the larger cities and towns through the expenditure of county funds for the purchase of tractors. The county had no funds available to pay the cost of operating the tractors, but arrangements were made for them to be run at the expense of the various cities and towns through which the main trunk highways passed.

The Board of County Commissioners, composed of Frank Howard, of Pittsfield, chairman; Robert S. Tillotson, of Lenox, and John Henderson, of North Adams, Associate Commissioner, purchased two Best "60" tractors and one 10-ton Holt tractor. These tractors were assigned one to the north, one to the central, and one to the

southern part of the county, and were placed in operation.

During the first two or three months of 1923, the main trunk lines selected by the Commissioners to be kept open by the tractors were cleared following each snow-storm. On a few occasions when high winds accompanied or followed the storm, the highways were opened by the next day, the tractor crew, in some cases, working all day and night to get the highway open at the earliest possible moment.

#### Tackling 12-Foot Snow-Drifts

No provision was made to keep Lebanon Mountain open, so the Automobile Club attempted to keep this highway passable for traffic. The first time an effort was made to open the road was about ten days after one of the heaviest storms. The tractors were being used on the highways for which they were intended, so the club had to wait until they were available for use. During this period, other storms followed and one, accompanied with sleet, made the condition of the highways so bad that the snow was packed down like ice in places.

A "shoveling bee" was organized among the members of the club, over 100 of whom turned out on a day when the tempera-

ture registered 6 below zero. After working all day in the cold, the shovelers had to abandon the attempt. The second shoveling bee was more successful, as the 10-ton tractor accompanied the volunteers. The crew worked until about 4 o'clock in the afternoon and opened the entire length of the road to traffic. Drifts nearly 12 feet high were plowed through by the tractor, and hundreds of automobiles which had been waiting on the New York side of Lebanon Mountain for weeks to go over the mountain crossed without further delay.

The County Commissioners of Berkshire have been highly complimented for their foresight in taking hold of the open-road movement. It is only a question of time when every community will follow their lead. The automobile to-day has passed from being a pleasure vehicle to a public necessity, so that county commissioners and city officials must heed the insistent plea that highways and streets be kept open for traffic throughout the year and proper mechanical equipment be provided for snow removal.

## Twilight Turned into Noonday

The Story of How Kewanee, Ill., Changed from One of the Poorest-lighted Towns to a Well-lighted City

FOR many years Kewanee, Ill., despite its fine factories, parks, schools, and public buildings, was spoken of as one of the poorest-lighted towns along the Burlington Railroad. To the stranger who arrived in Kewanee late at night, the sight of the poorly lighted streets was rather depressing. The system used for many years had been arc lights suspended from poles at street intersections. The plan to install a boulevard lighting system had been discussed many times and a number of trials had failed. It was agreed that a better lighting system was needed, but its accomplishment proved to be a stumbling-block

for some time. Through the activity of the Chamber of Commerce at the behest of Dr. Warren T. Heaps, its President, the sentiment of the business men was found to be in favor of an adequate lighting system.

After the Chamber of Commerce committee had conferred with lighting experts, and plans and specifications had been drawn up, the campaign was instituted, including direct-by-mail and newspaper publicity to secure the necessary funds from merchants, business men and property owners. The campaign committee first had the subscribers sign an agreement pledging a certain amount of money. After sufficient sig-



NIGHT SCENE IN KEWANEE, ILL., SINCE INSTALLATION OF BOULEVARD LIGHTING SYSTEM

Note lighting of façades by ornamental standards



TYPICAL STANDARD IN THE BOULEVARD  
LIGHTING SYSTEM AT KEWANEE, ILL.

natures had been secured, the signers were called upon for one-half of the amount they had pledged in cash, and the balance was secured by a bankable note. With approximately one-half of the necessary funds in cash and the other half in notes, bids were

asked. The public letting was held at the Chamber of Commerce office, with eight bidders participating. Bids were opened in the presence of the Board of Directors of the Chamber of Commerce, city officials, subscribers to the fund, contractors and material supply men. The contract was awarded to the Kelley Construction Company of Eau Claire, Wis.

Kewanee's White Way covers ten blocks of the retail district of the city. There are 98 lamps of 400 candle-power in Novalux Form 8 glass globes with Saratoga design tops. In the base of each post is a small transformer. A 5,000-volt cable is used in two circuits, with regulating transformers for each circuit, as a central power-plant. The posts are spread about 80 feet apart, and all lights burn each evening from dusk to 11 o'clock, at which time about two-thirds of them are turned off.

The contractor placed the order for material through the Western Electric Company, manufacturers of the cable. The posts were made by the King Manufacturing Company, and the ornamental lighting fixtures, lamps and transformers and other supplies were furnished by the General Electric Company. The total cost of the installation was \$15,194. This amount was oversubscribed, so that about 18 per cent has been returned to the various subscribers.

On the evening of December 16, 1922, exactly four months after the contract was awarded, the switch of the White Way system was turned on by the President of the Chamber of Commerce at a celebration participated in by several thousand people.

## How Much Can a Horse Pull on a Good Road?

Same Team at Iowa Fair Draws Three Tons on Pavement Easier Than  
One Ton on Dirt Road

TESTS made at the Iowa State Fair recently proved that the size of the load horses and mules can pull depends upon the road, but the pull exerted by the team which developed a 2,300-pound tractive pull was sufficient to start and draw 24 tons of coal over a level pavement and enough to pull 66 tons, if the load were once started. It was disclosed further that it is easier to pull 3 tons on a concrete

pavement than 1 ton on a firm dirt road, a forceful indication of the big savings to farmers from bigger loads on hard roads. A new farm wagon loaded with 6,240 pounds of sacked grain, equal to 104 bushels of wheat or nearly 112 of shelled corn, required a tractive pull of 32.5 pounds per ton on the pavement, against 134.7 pounds on a good dirt road.

—Minnesota State Highway News Service.

# The New Well Water-Supply of Waupaca, Wisconsin

By W. G. Kirchoffer

Consulting Engineer, Madison, Wis.

**A**BOUT eighteen years ago Waupaca began pumping its city water from well points driven into the sand near the west shore of a small spring-fed lake within the city limits. In time, all or most of these well points became clogged with the fine sand into which they were driven and it was necessary to run a suction line from the pump-station out into the lake and use lake water for filling the city's reservoir. This change was not altogether satisfactory; for although during the winter there was no dissatisfaction, in the summer and autumn months a great many users complained of a fishy or swamy taste to the water, and there were occasional instances of small fish or parts of fish coming through the faucets. Finally the Wisconsin State Board of Health condemned the using of this lake water-supply and ordered the city to put in a filtering plant or to secure a new and potable source of supply.

The writer was retained by the city to study the situation and recommended a source of supply that would furnish a water acceptable to the users and also to the State Board of Health. It was decided to sink a concrete well adapted to the nature of the water-bearing sand and gravel at the site of the original battery of well points. Carl Nelson, City Engineer, made careful and complete investigations into the quantity of water that would be available and the nature of the water-bearing material about the site.

It was found that for 22 feet downward from the surface there was nothing but sand, that the next 10 feet consisted of sand mixed with fine to medium gravel, and that below this stratum of sand and gravel a deposit of very fine-grained, hard-packed sand absolutely free from gravel extended down for 200 feet to the granite that underlies all this part of Wisconsin.

The first 22 feet yielded water, but the best source of water-supply was found to be in the 10-foot stratum of mixed sand

and gravel. The fine, hard-packed sand below this was not water-bearing to any considerable extent. From the stratum of mixed sand and gravel it was ascertained that a supply of good water was available at the rate at least of 700 gallons per minute. Therefore, it was recommended and decided that a cylindrical concrete well be sunk along the lake shore and that this well be designed so as to take the greater part of its water directly from the 10 feet of mixed sand and gravel.

## Features of New Well

This well was recently finished and put to use. The three outstanding features of its design are the screens for admitting water into the well cylinder, the gravel packing surrounding the cylinder for 4 feet, and the concrete "shoe," which cut a hole 8 feet larger in diameter than the outside of the well and which carried the 4-foot cylinder of packing gravel down with it as it sank.

Six concrete screens were built into the well walls directly above the concrete shoe. The shoe was sunk down through the best water-bearing material and bedded into the firm, fine sand deposit below. This left the windows centrally located in the 10-foot stratum from which the greatest part of the water-supply was to be derived. The walls of the well cylinder are of reinforced concrete 18 inches thick, and the screens are 5 feet 3 inches by 3 feet 3 inches by 6 inches thick and are situated at regular spacings around the cylinder wall.

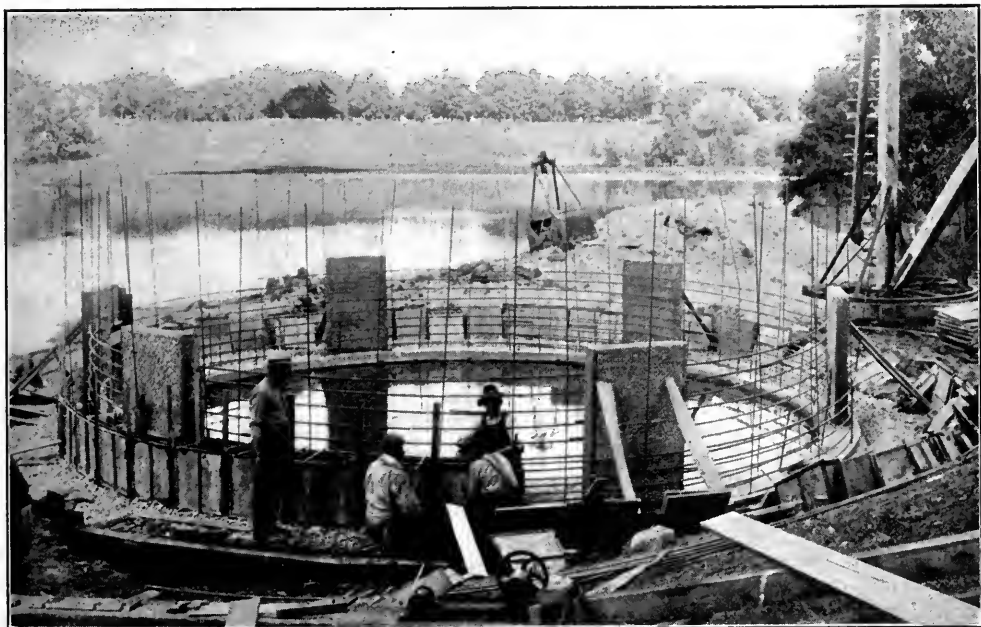
These screens consist of "baskets" of No. 10 galvanized wire spaced  $\frac{3}{4}$ -inch center to center horizontally and vertically and packed with hard, round-gravel that passed through a 1-inch riddle but was retained on a  $\frac{3}{4}$ -inch one. This gravel, after being placed in the baskets and packed tightly, was grouted with neat cement and water mixed to a creamy consistency. The packed baskets were laid on their sides during the

grouting operation, each on its own slightly tilted platform, above which it was raised about 6 inches by three cleats spiked to the platform. These cleats were beveled to a quarter-inch edge where they touched the galvanized wires. The grout, which had been mixed in a barrel, was then poured over the gravel-filled baskets from a bucket. After running through the pebbles it dropped down to the inclined platform, where it was guided by cleats to a second bucket. When this second bucket had caught the run-off from the first dousing,

sparingly with a 6-inch paint-brush.

After the screens had been grouted, they were left on their cleats, covered with damp burlap, for three weeks, a conspicuous sign being set up near at hand to warn the world-at-large and small boys in particular that the city's water-supply depended on the screens' remaining untouched for twenty-one days. The sign was effective.

At the end of the seasoning period tight wooden boxes were built around the screen baskets, and water was pumped over them, one at a time, at the rate of a little more



BUILDING THE CONCRETE WELL AT WAUPACA, WIS.

a little more grout was added from the barrel, and the contents, after being thoroughly stirred, were poured over the pebbles as in the first instance. This process was repeated until all the baskets appeared to be well coated and permeated with grout. The 6-inch beveled cleats served to raise the baskets above their platforms, thus permitting a clean run-off, and also served to give the inspector a chance to see whether the bottoms of the baskets, as well as the tops and sides, were effectively "painted." As a matter of fact, a very few defectively coated points were found on the undersides of the baskets after they had been placed in the walls of the well, but these small areas were treated by splashing grout into them

than 300 gallons per minute without producing any appreciable head at any time in any of the boxes. This test showed that the needed 700 gallons per minute would certainly pass through the six windows, even if some of them should become partly clogged with sand after a great many years.

When the grouted baskets of gravel had seasoned for twenty-one days and had successfully passed inspection tests for penetrability, they were placed in position on the concrete shoe. Each screen basket was wrapped with burlap bags and girdled with two or three turns of 1-inch rope. The fall-line from the derrick boom was then hooked to these ropes, and one by one the heavy screens were lifted and placed



where they belonged. So effective had the grouting been that not one of the baskets, although each weighed about 1,200 pounds, showed the faintest sign of being strained, bent or ruptured. A sample section of this screen material became so firmly cohesive after seasoning that it was extremely difficult to peg off even the most outlying and least enveloped pebbles. In fifty years or so, when the confining galvanized basket may have eroded and passed away, the grouted mass of pebbles will still continue to hang together and pass water into the bore of the well.

To guard against clogging the screens with very fine sand, a precaution forcibly suggested by the early experiences with well points, 4 feet of gravel was packed around the well cylinder to a height of 20 feet above the shoe. The inner 3 feet of this encompassing gravel cylinder is plain washed and sized pit gravel running from  $\frac{1}{2}$ -inch to 2-inch pebbles. The outer 1-foot ring is composed of roofing gravel.

The outer ring serves to hold back the sand in the natural ground, and the inner 3-foot ring permits the small amount of sand that may filter in through the packing gravel to trickle down into the 2 feet or more of what may be called wasted gravel lying above the shoe and below the bottom elevation of the screens. Very little washing-in of sand is to be expected, as water is drawn from all around the 130-foot circumference from at least an 18-foot band of water-bearing material. The inner coarse gravel system of packing serves primarily to furnish quick access for water from the natural water-bearing sand and mixed sand and gravel to the six screens, its function as a shaft through which negligible quantities of sand may drop down out of harm's way being quite secondary in importance.

The shoe at the bottom of the well cylinder flares out for 4 feet. This gives the concrete part of the well much the appearance of a gigantic sewer pipe  $37\frac{1}{2}$  feet long and 30 feet in diameter on the inside, with a bell 41 feet across. This bell-end cut the hole into which the concrete mass settled, and also carried with it, as it went down, the 4-foot encompassing wall of gravel. The cutting edge of the shoe is 6 inches wide, and the shoe itself is 3 feet high at its extreme outside edge. This 3-foot section of concrete at the 41-foot

diameter of the shoe acted with a sort of rifle-barrel effect in giving direction straight downward during the sinking operations. The heavily reinforced shoe was cast at one pouring of concrete and then allowed to season for three weeks before the next 6 feet of wall embracing the screens was added.

Sinking the well was accomplished by means of digging from inside the well bore with a half-yard clam-shell bucket swung from the 35-foot boom of a stiff-legged derrick. As the excavation proceeded, the concrete structure dropped down of its own weight.

For the greater part of the sinking process the concrete mass settled quite evenly and quite steadily. Sometimes one side or another would begin to dip down a bit, but a little intensive dredging at the opposite point always rapidly corrected these tendencies to tilt. Most of the time it was possible to secure even and smooth sinking by dredging along the natural swinging line of the boom across the center of the well. By means of a sounding line attached to a 15-foot fish-pole it was easy to keep track of the condition of the bottom of the well as the work proceeded.

The central digging plan was abandoned only at the very last part of the sinking job. It was abandoned in order to reduce the volume of the pit below the bottom of the shoe and thus cut down the amount of back-filling that would have to be done to secure a level well bottom after sinking the concrete shoe to its required depth. As a result of the change in procedure, a mound was left in the middle of the pit, and the extreme depth of the pit below concrete was reduced about 2 feet. Nevertheless, it was necessary to backfill about 200 yards of excavated material, much to the disgust of the clam-shell operator.

For the last 8 feet of sinking the concrete mass went down by lunges instead of sinking evenly and regularly. The greatest single lunge was 10 inches, and the average lunge was about 4 inches during this phase of the work. It is likely that the lunging effect was brought about by the action of increased circumference friction caused by the pressing in of the natural ground against the wall of gravel packing. Naturally, this pressure became more and more powerful as the mass settled and pre-

sented more and more circumferential area to be squeezed against. Finally the squeeze became so strong that it was not until the bottom had been cleanly dredged out all around the cutting edge of the shoe that the mass was enabled to break loose and lunge downward. The final lunge took the walls down 4 inches below the planned stopping point; but as arrangements had been made to deal with such a contingency, no harm was done and no inconvenience occasioned.

After putting in the 200 yards of back-fill material, 2 feet of gravel was spread over the bottom of the well, the lower foot being of roofing gravel and the foot above this of material such as was used for the inner 3-foot ring of gravel surrounding the concrete cylinder. This insures a solid base for the shoe and prevents any possible stirring up of the fine sand that lies below the gravel. In putting in this 2-foot bed of gravel the top of the material was leveled to an almost floor-smooth surface. This was made possible by dropping the gravel from about 6 feet above the water surface, thus permitting it to spread out as it sank through about 30 feet of water. The sounding line was used continually during this time to determine just where material should be dumped.

Because of the topography of the well site it was necessary to locate the mixing

plant at street level about 20 feet above ground level at the well. A wooden dumping bucket was devised to hold a half-yard of aggregate, and the derrick was used to swing the wooden bucket from the mixer to the forms. The derrick and wooden bucket also were used to handle the placing of the 2 feet of gravel in the bottom of the well. The record for pouring concrete was 22 yards in  $6\frac{1}{2}$  hours. The record for sinking the well was established when digging the stratum of best sand and gravel material, and was 4 feet in about 10 hours.

Before any drainage outlets had been cut through to the lake, water stood in the well 19 inches higher than the lake surface. This establishes the fact that the well captures water that is on its way to the lake, and not water that seeps into it from the lake. A flat reinforced concrete roof supported by I-beams covers the well.

After the roof had been put on, pumping tests were made that in their results corresponded almost exactly with the forecasts made from the preliminary investigations.

This well job was done by Olson and Thompson of Clintonville, Wis., for \$11,200, their bid being just about half what it had been expected the work would cost.

A. G. Barnett was resident engineer on the work, and to him belongs the credit for the successful construction of the well.

## The Economic Value of Good Roads

### Second-Hand Value of Cars Operated by Department of Public Highways of Ontario an Index of the Relative Life of a Car on Good and on Bad Roads

THE cash value of good roads in the saving of wear and tear on vehicles cannot be too strongly emphasized. The benefits of good roads are shown by the reduced cost of maintenance and the longer life of automobiles used over good roads on one hand and over bad roads on the other. One type of car with which everyone is acquainted and of which the Department of Public Works of Ontario has a number, has been used by that department since 1917, when the highway system was first begun. The cars bought in 1917 and 1918 were run over the roads in the condition in which the highways were when taken over, and in some cases the cars were practically wrecked in one season's wear. When turning in such cars and renewing

them, the Department was allowed a sum of money which represented an average depreciation, exclusive of repairs, of \$240 per car per year. In 1923, a number of cars were turned in for replacement, and the actual depreciation was \$125 per car per year. This is a saving in depreciation alone of \$115 per car per year. With 272,000 cars and trucks in Ontario, many of which are more expensive than the car referred to above, and half of which are owned outside of the cities, there would be a saving of \$15,500,000 a year on depreciation on cars and trucks owned outside of the cities, using the low value of \$115 depreciation per car per year.

ACKNOWLEDGMENT.—From a paper read before the Canadian Good Roads Association by George Hogarth, Chief Engineer, Dept. of Public Highways, Ontario.

# Road Work That Can Be Done in Winter

By John H. Mullen

Chief Engineer, Minnesota Highway Department

THE nature of road work makes the problem of winter work rather difficult, but our experience in Minnesota is that the situation can be greatly improved by planning our program of winter work well in advance. This applies particularly to grading, for every year we have a number of projects on which there is rock excavation or heavy earth work, with deep cuts and large enough quantities to warrant the use of steam shovel equipment, which can operate on that work as well in winter as in summer. We find that if contracts for this kind of work are let in the fall, the contractor is thereby enabled to make use of steam shovel equipment to advantage during the winter, and can then hold a nucleus of his organization together through the winter and also benefit by the lower wage scale prevailing at that time. This all makes for a lower unit cost of excavation and has the further advantage of disposing of the heavy work in advance of the ordinary grading operation.

An example of this kind of work is a last winter's job 5.1 miles in length, involving 172,600 cubic yards of excavation, of which 110,167 yards was rock, which

was done at a price of 19 cents for earth, 65 cents for loose rock, and \$1.30 for solid rock. Winter work cannot be credited entirely with these low figures, for the work was very heavy, averaging nearly 34,000 cubic yards per mile, and the rock was a soft limestone, but attention is called to this job as being especially suitable for winter work.

Another project is a 40-mile piece of grading on new location now being done, on which the estimated quantities are 418,000 cubic yards of earth and 130,000 cubic yards of solid rock, which was let at a price of 45 cents for earth and from 95 cents to \$1.60 per yard for rock. This is in a timbered country, rather inaccessible, and the prices on this road are low when it is considered that there is no loose rock classification and the solid rock is a tough granite or trap rock. The variation in rock prices on this job is due to the fact that some of the

## Winter Work Is Good Business

Road building has become a business, engaging the attention of business men, and we should not delude ourselves with the idea that we are not paying for the time of the contractor and his principal assistants while idle, nor for the interest on his investment in equipment when not in use; for the road contractor, like other business men, is applying cost accounting and business methods to his work, or will have to if he continues to operate, and the public will pay the bill. Accordingly, any means whereby the fixed overhead and equipment charges can be spread over the whole year, instead of being carried by a few months' work, will be a direct saving to the taxpayer. This is the economic, engineering side of the question. Then there is the other phase, quite important too, of providing winter employment for a part of the large army of men engaged in road work during the summer. True, in some parts of the country there is still the opportunity for men and teams to obtain employment in the winter on such work as logging, but this work is diminishing and is also becoming an all-year operation which does not offer the chance for winter work to men from other lines; so that we have the further responsibility of taking care of unemployment, or being faced with the proposition of paying wages sufficient to carry men through the winter, for men must live and teams must be fed in winter as well as in summer.

rock excavation is along the bluffs on the shore of Lake Superior, which allows for side casting without any haul and is being done at a price of 95 cents per yard, while the rock work involving haul costs \$1.60. Letting this work in the fall also allowed for all of the clearing on the line, about

316 acres, to be done in the early winter. On the whole, we believe that such conditions as existed on the two projects referred to and which prevail in a measure on a good percentage of our work, can be handled in the winter, or as combined winter and summer projects, to the advantage of all concerned.

### Gravel Surfacing Roads in Winter

In the northern states, most of the roads are being improved by gravel surfacing. Taking again, as an example, the state of Minnesota, we find that in the past two years there were 1,675 miles of this kind of work done by the state alone, with an average of 1,500 cubic yards of gravel per mile, or a total of about 2,512,500 cubic yards of gravel hauled. In addition to this, 1,750,000 yards was hauled by the counties on secondary roads. Of course, a portion of this had to be done in the summer time, on account of wet pits and the necessity for shipping in cars, but we have found that a great deal of this material could be hauled most economically in the winter time, especially when long hauls were involved. This is due in part to the lower labor rates, but is principally due to the fact that when the roads are frozen smooth—and we make it our business to see that they go into the winter in that condition—the trucks or wagons, as the case may be, have the benefit of a surface to haul over that is as good as a concrete road, which permits of a maximum loading and, consequently, a lower unit hauling cost.

As an example, last winter one contractor with a fleet of 26 trucks hauled 28,000 cubic yards of gravel an average of 9 miles in 25 days. The contract price for this work was 20 cents per cubic-yard-mile, and the average truck load was 7 cubic yards. This would have been impossible in the summer time, not only because the contractor could not have hauled so cheaply over earth and gravel roads in the summer, but also because we would not allow such equipment to be used, on account of the damage to, or destruction of, the roads used. Summer gravel hauling is restricted for this very reason to pneumatic-tired trucks, which, of course, limits the loads to about 3 yards. In the past winter, Minnesota contracted 1,350,000 cubic-yard-miles of gravel hauling by truck at an average cost of 22 cents per yard-mile. This com-

pares favorably with the average cost of 27 cents per yard-mile for summer haul.

Winter graveling is not by any means confined to truck hauling. Perhaps the greatest benefit of this work to the unemployed has been where the material has been hauled by teams. A striking example of this is our experience last winter in a section of the state where farming and financial conditions had made it very difficult for some of the people to get through the winter. It so happened that in that territory a large mileage of grade was ready for surfacing, and dry pits were available. Accordingly, all the men and teams that could be used to advantage were put to work as an emergency measure, and in all about 500,000 cubic-yard-miles of gravel was hauled, at an average cost of 20 cents per yard-mile. This cost is low for team haul, but the team owners were anxious to have the work and were willing to work long hours to obtain the money so made available; in fact, while the engineers were able to place 340 teams on this work, there were probably about one-third as many more who would have liked to have the same opportunity. It is needless to say that this operation was of financial advantage to the state, as well as a means of taking care of a serious unemployment situation.

Gravel hauled in the winter is generally deposited in continuous windrows on the grade, and is bladed to the proper section and compacted under traffic the following spring. While there is sometimes considerable loss of winter gravel, due to muddy subgrade conditions in the spring, this is more than overcome by the lower cost of the winter work and by the advantage of having the surfacing deposited and in good condition before the road would otherwise be ready to carry any traffic. Even without these advantages, it is good business to haul this heavy tonnage in the winter, in order to avoid the damage to earth and gravel roads over which the material must be hauled, and which are badly cut up by such hauling in warm weather.

### Fall Lettings of Contracts

At first thought, it does not appear that much advantage is to be gained by winter work in connection with paving operations, but in this field there is an opportunity not only to cut the cost of paving work, but also to save many of the delays encountered

in the summer time due to shortage of material and congested shipping conditions. This can be taken care of if the highway departments contract their paving in the fall of the preceding year and provide for partial payment to contractors for materials produced and stock-piled. It is not reasonable to expect a contractor to purchase and stock-pile material during winter months, unless provision is made to pay him monthly for doing that work, but if this is done, there is an incentive for him to purchase and store his materials during the slack period, thereby furnishing winter employment to a part of his regular force, and—what is more important—shipments may be made while cars are available and, consequently, the usual delays for lack of cars and aggregates can be avoided, and the material may be bought at a lower price.

The writer took this matter up with a number of operators of rock-crushing plants, all of whom agree that if road contracts are let sufficiently in advance to allow for the continuous operation of crushers during winter months, the reduction in cost of producing rock would amount to from 12 to 20 per cent below the cost when quarries are operated only during warm weather. The items making this possible are, briefly: that an increased tonnage for the year de-

creases the interest and overhead charge per ton of output, as well as decreasing the depreciation and other fixed charges which are not dependent entirely upon plant operation; the labor turnover is less, for the same men may be employed throughout the year, and the operator is also given the advantage of skill acquired by men continually employed in the same kind of work. There are, of course, such disadvantages to winter rock producing as the difficulty of proper lubrication, the breakage of castings, and added cost for protecting pipe lines; but in estimating the decreased cost stated above, these things were taken into account.

There are many other items of construction which can well be taken care of in the winter, such as the distribution and laying of track and pipe lines, the erection of central proportioning and loading plants, preparation of equipment, etc., but practically all of the winter construction work which can be done to advantage is predicated on the early letting of contracts and payment of monthly estimates for preparatory work, which, if arranged for, will in itself make for development along this line.

ACKNOWLEDGMENT.—From a paper presented before the American Roadbuilders' Association, Chicago, 1923.

## Safety First on a County Highway

Buchanan County, Mo., Provides Guard-Rails of Substantial Construction, Built with Creosoted Posts to Lengthen the Life of These Guardians



THIS JEFFERSON HIGHWAY GUARD-RAIL HAS BLACK POSTS AND WHITE RAILS, EASILY DISTINGUISHABLE DAY OR NIGHT

# Typical Power-Plants and Pumping-Stations for Water-Works

By Charles B. Burdick

Alvord, Burdick & Howson, Engineers, Chicago, Ill.

IT is proposed to cite a few examples of recent pumping-station construction, with illustrations and figures of cost. Practically all of this work has been done in cooperation with Victor A. Matteson, architect, Chicago.

## The Des Moines Pumping-Station

The new 21st Street pumping-station at Des Moines, Iowa, is a steam station. It pumps the entire water-supply of the city in one operation from the ground-water collecting galleries into the pipe system against direct pressure. The rates of pumping at the present time are as follows:

Minimum night rate M. G. D.....	6.5
Average day M. G. D.....	10.0
Momentary peak .....	18.0
Maximum fire demand.....	24.0

The pumping-plant consists of three DeLaval turbo-centrifugal geared units, two of 15, and one of 25 million gallons capacity. These pumps operate at 269 feet total head with 200 pounds boiler pressure and 100° of superheat. The two smaller of these pumps developed duties on test ranging from 150 to 114 million foot-

pounds per thousand pounds of steam at full capacity and half capacity respectively. The larger pump is guaranteed to deliver 161 million duty at full capacity, 164 at three-fourths capacity and 144 at one-half capacity.

The boiler plant consists of four 323-h.p. Springfield water-tube boilers. One boiler is served by a LaClede-Christy natural-draft chain-grate stoker. Three boilers are equipped with Harrington chain-grate stokers operating on natural draft up to 125 per cent rating, and forced draft up to 200 per cent rating. The plant burns a low grade of bituminous screenings (Poke County, Iowa), ranging from 8,000 to 10,000 B. T. U. The individual boilers and stokers in this plant developed on test from 72 to 74 per cent efficiency when operating on natural draft slightly above boiler rating, and 70 per cent on forced draft at slightly under 200 per cent rating.

This boiler and pumping-plant serves the city on about half the tonnage of fuel per unit of water pumped required by the old pumping-station, served by hand-fired tubular boilers and compound crank and



POWER-PLANT AND PUMPING-STATION OF THE DES MOINES, IOWA, WATER-WORKS

fly-wheel pumps. The greater part of the saving is secured by the improved boiler plant.

The matter of handling coal is a difficult one in a water-works boiler plant, by reason of the magnitude of the peak load as compared to the comparatively small average load. Coal-handling equipment of the type adapted to electric lighting practise often fails to show economy when applied to the small tonnage burned by water-works, on account of fixed charges. The device adopted at Des Moines consists of a gantry crane feeding from cars or coal pocket to an overhead bin in the boiler-room. It also picks up ashes, dumped to the ash pocket by hand, loading them into cars or trucks. By the use of this crane one man unloads all cars not dumped, and handles all coal and all ashes for a 24-hour shift in 3 hours or less. The coal-handling scheme at Des Moines at the present price of labor a little more than "breaks even" with hand coal handling, labor and fixed charges considered. Its installation was considered warranted in view of the probable future increased cost of labor.

The group of buildings comprising the new water-works pumping-station at Des Moines consists of the main pumping-station and boiler-room, a shop and garage building for the accommodation of all automobiles and trucks used by the Water Department, a warehouse, with pipe yard adjoining, for storing pipe fittings and miscellaneous supplies; also a group of cottages housing four families of water-works employees.

The main pumping-station consists of a pump-room containing space for 80 million gallons in pumping capacity. Fifty-five million gallons capacity is at present installed. The boiler-room contains 1,300 h.p. in boilers, and space is provided for enlargement that may be required after 1940.

Adjoining the main entrance to the pumping-station are located an office for the Chief Engineer, a laboratory, and toilet accommodations for the public. Employees' toilet-rooms are located between the pump-room and boiler-room. Galleries are provided in the pump-room for the accommodation of visitors, so that the pump-room may be seen without interfering with the

operation of machinery.

All foundations are constructed of heavy reinforced concrete. The pumps are set 13 feet below the high-water line, thus necessitating a heavy pump-pit floor and walls to resist upward and inward pressure. The pumps are thus located in order to draw from the gallery system in extreme low water.

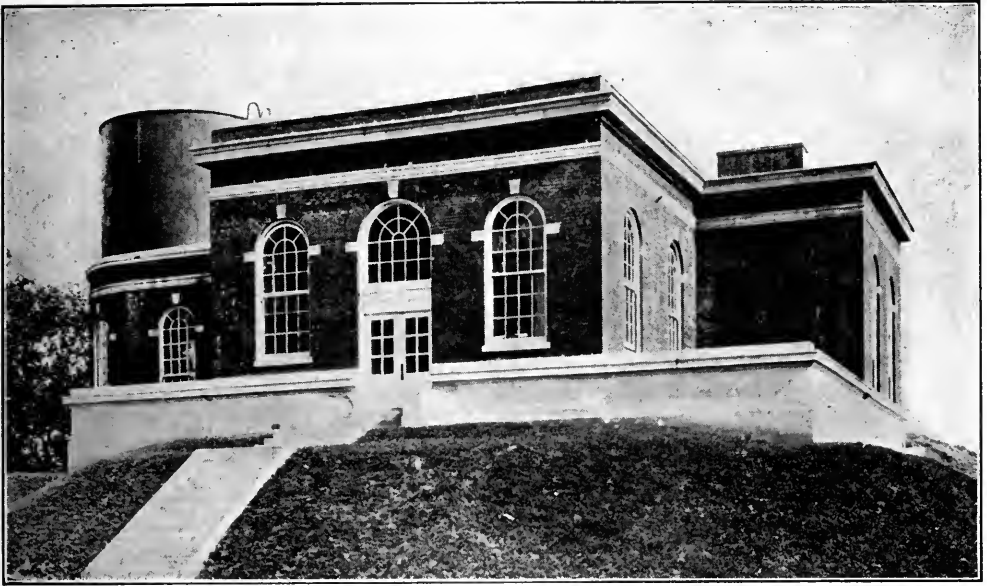
The pump-room is finished with terrazzo floors and white enamel brick walls up to the top of the wainscot at grade line. Above this point the walls are paneled and coated with rock plaster. The roof is supported by steel trusses carrying Federal cement tile with a composition roof covering. Steel windows, doors and trim are used throughout.

The boiler-room is finished with concrete floors, and walls of common brick painted. The entryway and halls are floored with terrazzo and provided with terra-cotta walls. The exterior of the building is of dark red tapestry brick with Bedford stone trim.

The shops and garage building exterior finish is similar to that of the pump-house. The interior is finished with concrete floors and common brick walls, and the whole is surmounted by a timber mill construction roof, slow-burning type, and covered with composition roofing. Steel window sash is used. The remaining millwork is of wood. This building provides all facilities for the maintenance of the water-works motive power, and contains a wood shop, a machine shop, a paint shop, and in the rear a stable for the accommodation of one team.

The warehouse building resembles a small freight house in general plan, with an office space in the front where all water-works labor is handled and assigned to its daily tasks. A siding runs parallel with the warehouse, with platforms on both sides, so that freight unloaded may be wheeled through the storeroom and loaded on wagons or trucks. Heavy freight, such as pipe and large fittings, may be unloaded from the opposite side of the cars and stored in the pipe yard. This building is surmounted by a mill construction wood roof. The floors are of concrete, and the office walls are plastered. Wood millwork is used throughout this warehouse building and office.





PUMP-HOUSE AND FILTER PLANT, ASHLAND, KY.—THE TERRACING COVERS THE FILTER

### Orlando Water-Works and Light Plant

At Orlando, Fla., the new station is now nearing completion. This accommodates the water filtration plant of 4 million gallons capacity, electrically driven centrifugal pumps of 12 million capacity augmented by 4 million of steam pumping capacity in another station. The generator room contains 4,000 kw. in turbo-generators with space for 2,500 additional kw. The boiler-room contains 1,500 h.p. in boilers, oil-fired.

The Spanish type of architecture was used, as especially adapted to a warm climate. The boiler-room is open on the rear, the boiler fronts being protected by open archways. The walls are of brick with exterior cement plaster. The roofs are supported on steel trusses with concrete slabs and composition surface. Red tile is used for sloping roofs and wall caps. The interior of the pump-room is plastered. All other wall surfaces are of common brick, painted. The floors are of red quarry tile.

### The Manistique Tower

The opportunity was afforded at Manistique, Mich., to combine a small electric-driven pumping-station and a water-tower. The water-supply at Manistique is delivered by gravity, substantially at ground

height, to the center of the town, where it is pumped electrically into a steel elevated tank surmounting the pump-house.

The land occupied by the pumping-station was donated by a public-spirited citizen upon condition that an attractive station and tower should be built. Manistique is a small city with a population of about 7,000. A plan was worked out which accommodated the necessary electrically driven pumps in the base of the tower, and the saving thus effected permitted enclosing the tower in an attractive envelop. The cost of the structure thus built is approximately equivalent to that of an uncovered steel elevated tank plus a separate building of fire-proof construction.

The steel tank contains 200,000 gallons. The top is located 107 feet above the ground. It has a hemispherical bottom and is supported on the brick work 64 feet above ground by means of eight short legs horizontally braced. The tower is constructed of brick with red tapestry face brick. The trimming on the lower portion of the tower is Bedford stone, and the cornice is constructed of reinforced concrete cast in place. The dome is of zinc supported on wood trusses.

The tower is octagonal outside and 16-sided inside. The brick cross-section is sufficient to support the superimposed load

with a unit pressure not exceeding 175 pounds per square inch.

The 16-sided pump-room is 33 feet in inscribed diameter. It is floored with terrazzo with white enamel brick wainscot, and rock plaster walls and ceiling. A false roof is provided over the pump-room, with drains to catch any drip or leakage from the elevated tank. A cellar under the pump-room accommodates all pipes, heating, and plumbing equipment.

The electric pumps are pressure-controlled from the tank and start and stop automatically. No attendant is required in the operation of the plant except for periodical visits for inspection and oiling.

### **Gary Station and Water-Tower**

The Gary pumping-station and water-tower, although built a number of years ago, is shown here as an example of what is possible in the use of concrete.

The water-tower is simply a housing for a steel elevated tank supported on vertical steel legs, entirely independent of the envelop. This plan was followed on account of the necessity for haste in providing a water-supply for the city during the building period. The concrete envelop was added later. The shaft of the tower is of reinforced concrete with a concrete dome roof. The base of all cornices and the facing on the lower one-fifth of the tower is of precast concrete applied in the usual manner where stone is used. The shaft proper is of reinforced concrete with a reinforced concrete dome roof.

The pumping-station has concrete foundations. The pump-room is depressed below the ground level and is lined with white enamel brick. Above grade the walls are of brick with buff pressed brick interior face, and precast concrete exterior face. The exterior face blocks are of two colors, gray and dull red.

### **Ashland, Ky.**

The Ashland, Ky., plant exemplifies construction for a small city. It includes an electric-driven pumping-station with gasoline reserve pump; also a water filtration plant. The construction throughout is entirely fire-proof and of good appearance, but no extra money was spent for the sake of appearance.

The entrance to the plant is through the operating floor of the filtration plant. The

filter-beds produce the terrace effect indicated in the picture.

Upon the Ohio River the intake problem is important on account of the extreme variation between high water and low water. The low-lift pumps are located in a pit 26 feet in diameter and 43 feet deep. They consist of two motor-driven centrifugals and one high-speed gas engine centrifugal, each  $2\frac{1}{2}$  M.G.D. against 65 feet head. Three pumps of the same capacity operate against 275 feet head when pumping to the city. These pumps and the filters are installed on the roof of the clear well.

The filtration plant consists of four beds, total capacity  $2\frac{3}{4}$  M.G.D. A high-velocity wash is used from a 35,000-gallon steel wash tank set on the roof of the pump-pit.

### **Ironwood, Mich.**

This plant develops a ground water-supply from driven wells, and pumps it against a head of 650 feet through a 4-mile pipe line of 16-inch diameter. The water is developed from three shallow well groups, each substation containing a 2-M.G.D. pump. The main pumping-station contains two 3-million-gallon electric-driven centrifugals and a  $1\frac{1}{2}$ -million-gallon high-speed gas-engine-driven centrifugal. One gasoline-driven centrifugal is also installed for reserve low-lift pumping.

The buildings connected with the Ironwood water-works are all constructed from boulders picked up on the water-works lot. The saving thus effected as compared to the cost of using brick was nominal, but it is believed that these buildings present a better appearance than would brick structures in this locality.

The main pump-house has walls of boulder stone plastered inside on metal lath and painted, floors of concrete painted, and roof of slate on wood with matched and beaded ceiling oiled, and exposing steel trusses. Three similar sub-pumping-stations were built, and as the plant is located some distance from habitation, it was necessary to construct two six-room dwellings, also built of boulder stone.

### **Prairie du Chien, Wis.**

This plant represents the practicabilities in a small town where the funds available for water-works construction were quite limited. This pumping-plant consists of a

concrete pit 45 feet inside diameter by 24 feet deep, surmounted by a mill construction wooden roof with a small brick building attached to the pit at the ground level for office and shop purposes.

This plant is electrically operated. Water is sucked directly from four driven wells immediately outside the pit wall and discharged into the pipe system, which is connected to an elevated reservoir on the adjoining bluffs. The pumping installation consists of one 500-gallon motor-driven centrifugal at 340 feet head, one 600-gallon high-speed gasoline engine centrifugal, and one 600-gallon motor-driven triplex pump moved from an old pumping-station. Space is provided for a fourth pump at some time in the future.

All foundations are of reinforced concrete. The superstructure and the parapet around the pumping-pit are common brick with moderate-priced face brick. All sills, lintels, and caps are built of precast concrete. All roofs are of wood construction. The composition roof covering of the pit is concealed by the brick. The roof of the office and shop structure is finished with cement interlocking tile. Concrete floors are used throughout. The interior walls of brick are painted.

### Cost of Pumping-Stations

The cost of the pumping-stations that have been described and of several others

is shown in the following table. As the prices of labor and material have fluctuated quite materially during the period in which these stations were built, there is shown in the table the date of the contract, the price basis at the time, and the price basis at the present time. The table also shows the cubic-foot cost of the stations as of the time when let and as of the present time. In computing cubic-foot cost the contents of the building have been figured based on outside measurements and taking the height from the footing level to the average outside surface of the roof for each part.

The tabulated price base is the average cost of building materials as published by the United States Department of Labor. This refers to the average prices of 1913 as 100 per cent. The use of this price base presupposes a fluctuation in labor equal to the fluctuation in material price. The price of labor generally fluctuates less than the price of material. It is true, however, that the efficiency of labor enters into contract cost, and it is generally true that when materials are high, labor is scarce and its efficiency decreases, therefore tending to make labor cost more nearly fluctuate with the prices of materials. Apparently the assumption made regarding labor does not seriously affect the comparisons of cost, for the unit prices appear to line up very well in the comparison of buildings as noted below.

COST OF PUMPING-STATION BUILDINGS

<i>Pumping-Stations</i>	Cost	Contract Date	†Cubic Ft. (Thou-sands)	Cost Per Cu. Ft.	Cost Price Base	Price Base Mar., 1923	‡Present Cost Per Cu. Ft.
Des Moines, Iowa.....	\$220,479	1920-23	810	27.0c.	178	198	30.0c.
Ashland, Ky. ....	34,194	Oct., 1921	130	26.4	159	198	32.8
Orlando, Fla. ....	91,800	Sept., 1922	510	18.0	180	198	19.8
Ironwood, Mich.							
Main station .....	29,155	July, 1920	65	44.8	269	198	33.0
Sub-stations .....	9,644	July, 1920	7.5	64.2	269	198	47.6
Manistique, Mich. ....	71,379	Sept., 1921	140	51.0	156	198	65.0
LaCrosse, Wis. ....	50,834	Nov., 1912	484	10.5	100	198	20.8
Prairie du Chien, Wis. ....	21,017	Sept., 1921	97.3	27.0	156	198	34.3
<i>Auxiliary Buildings</i>							
Des Moines garage.....	51,027	May, 1922	390	13.1	160	198	16.2
Des Moines warehouse....	18,754	May, 1922	111	16.8	160	198	21.0
Des Moines cottages							
3 cottages, 4 families....	20,430	May, 1922	18	29.2	160	198	36.0
22 rooms							
Ironwood cottages							
2 cottages, 2 families....	16,900	July, 1920	16	44.5	269	198	33.0
12 rooms							

\* Building materials, U. S. Dept. of Labor.

† Each building where more than one. Contents based on outside measurements at footing to average height of roof.

‡ As of date April 1, 1923.

### The Proper Equipment for Water-Works Pumping-Stations

Attention is called to the article of this title appearing in the October, 1923, issue of THE AMERICAN CITY, by Arthur L. Mullergren, Consulting Engineer, Kansas City, Mo.

# Forward Steps in Municipal Affairs

## *To Keep the Citizens Informed*

LAKELAND, FLA.—One weakness common to city manager government and all other forms of municipal administration is failure to keep the citizens fully and frequently informed on the operation of the city's affairs. As an additional means of conveying such information to the city's "stockholders," there has been erected at the corner of Main Street and Kentucky Avenue, in Lakeland, the bulletin board here shown. Indirect lighting makes the board of service after dark, while glass panels and a green stained roof protect the bulletins that will be posted from time to time.

The first use of the board was the presentation of large maps of the city showing

the proposed civic extensions and improvements that were to be included in a \$450,000 bond issue voted on August 21. One chart showed the water-works extensions and the location of the new fire hydrants, the installation of which will greatly reduce the insurance rates in those sections of the city affected. Another mapped out the electric light service extensions, so that the people had placed before them in a striking and forceful manner the scope of the work proposed to be done if the bonds were voted. The publicity thus secured for the proposed bond issue was undoubtedly a factor in the affirmative vote at the polls. The bonds carried two to one.

Much favorable comment has been heard on the idea of thus presenting valuable information for the enlightenment of the public. It is the purpose of the City Manager to post from time to time information of a general nature that will be helpful in still further strengthening a spirit of cooperation between the people and their officials.

ANTON SCHNEIDER,  
City Manager.

## *Modern Fire Stations in Shreveport*

SHREVEPORT, LA.—Recent important improvements in the fire-fighting facilities of the city of Shreveport include the new central station and suburban station here shown.

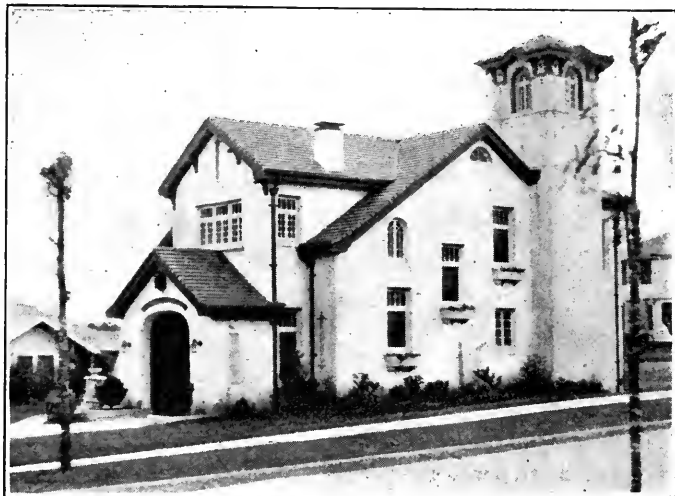
The central station cost \$114,000. The apparatus room is 80 by 80 feet, with five doors, to accommodate eight pieces of apparatus. In the



LAKELAND'S CIVIC BULLETIN BOARD

rear of the building, occupying a room 20 by 80 feet, is a well-equipped machine shop. There are also two rooms on the first floor for the Fire Marshal and the Captain of Watch. The second floor contains the alarm and battery room, which is fire-proof, also the Chief's and Assistant Chief's office and bedroom, Captain's bedroom, secretary's office, firemen's bedroom, kitchenette and dining-room, bath and toilets. The building is equipped throughout with the latest electric fixtures and house and local telephones, and is heated by natural-gas radiators.

The construction consists of brick walls and reinforced concrete floor and roof. The interior is plastered and partitioned with metal lath and channel iron. At the rear



SUBURBAN FIRE STATION, SHREVEPORT, LA.

of the building is a four-story drill and hose tower, with a 20-foot wash rack adjoining. The building is located 15 feet from the street line, thereby giving sufficient room for all apparatus to leave in any direction. The lot measures 120 by 150



CENTRAL FIRE STATION IN SHREVEPORT

feet and the surplus ground is beautified with lawn and flower beds.

The new suburban station is in a high-class residential district. Wealthy property owners, who had signed petitions against the erection of any fire house in their vicinity, are now convinced that the station does credit to the neighborhood. The attractive architectural style of the building is shown in the picture. The interior fittings are in keeping with the fine exterior.

The apparatus room is tiled 7 feet high with white glazed brick, and the walls and ceiling are tinted ivory. The doors and woodwork are brown and the window frames are white-enameled. There is a marble shelf near the front door, on which is mounted the punching-register with take-up reel. Above this are two gongs, one 15-inch and one 10-inch, as the station receives its alarms over two circuits. There are also two telephones connected with the central station switchboard.

The living-room is on the west side of the ground floor, with a tiled balustrade and porch in front, and is very attractively furnished. On the second floor is a foyer in which there is a sliding pole boxed in, and two narrow doors opening both ways. The lavatory, kitchen, shower-bath, tub bath and bedrooms all have doors leading into this foyer. The equipment throughout is such as to afford the men the comforts of a well-furnished home and to cause them to take real pride in the neatness and upkeep of the building. Indeed, no citizen of Shreveport can fail to be proud of such structures as this and the new central station.

S. J. FLORES, Chief,  
Shreveport Fire Department.

### ***The Morning Papers as a Text-Book in English***

NEW YORK, N. Y.—In one of the high schools of New York City the teacher of English once each week uses the morning papers as a text-book. The pupils are divided into groups, each group being responsible for reporting upon one paper. In so far as possible they use the papers printed in the foreign languages also, thus getting the principal news items from all points of view. The discussion is upon the main topics of the day concerning which the essential facts are known to all the reporters. In addition to studying style

in expression and using this discussion as an exercise in English, the teacher places his special emphasis upon the different versions that these various newspapers give to the same story. He uses this means for bringing out a fact that is well known but not so well and thoroughly appreciated—that no two people interpret and describe the same thing in quite the same way. Each brings to the task his own point of view and his own background of experience, and thus, unconsciously often, he reports an event in quite a different way from all the others.

These exercises in English in this high school are giving the boys and girls a broader sympathy and understanding and a better training for tolerance than any other device of which I know. It would tend, I should expect, to make them open-minded and help them to see the other fellow's point of view in many things that are bound to come to them in their later experience.

LEE F. HANMER, Director,  
Recreation Department, Russell Sage Foundation.

### ***Cash for Carefulness on Municipal Street Railway Lines***

ST. PETERSBURG, FLA.—Giving carefulness a definite cash value has worked out extremely well in reducing accidents on the municipal street railway lines of St. Petersburg during the past fiscal year, and as a result 33 of the 65 motormen and conductors employed by the city have received \$1,340 in bonuses of from \$30 to \$50 each.

During the fiscal year recently closed, the city street cars, most of which are of the pay-as-you-enter, one-man type, carried 3,623,276 passengers and ran a total of 968,075 car-miles. During that time 286 accidents were reported, this figure covering even those of the most trifling sort, such as falling windows, faulty motors and fenders—in brief, anything out of order with a car. There were only 26 cases in which injuries resulted, one of these a fatality, for which the city was not held responsible; and, although damage claims were paid in all but two cases where claims were made, the total sum expended for claims was but \$852. All were settled by compromise, and the two yet pending remained unsettled because the city did not deem itself liable.

Under the bonus system men who operate cars for an entire year without an accident

receive a \$50 bonus; similarly, those operating cars eight consecutive months receive a \$40 bonus, and those operating for four consecutive months without an accident receive \$30.

R. E. LUDWIG,  
Director of Public Utilities.

### ***Kiwanis Helps Board of Education Purchase Playground Equipment***

AUBURN, NEBR.—Through the cooperation of the Auburn Board of Education and the local Kiwanis Club, about one thousand dollars' worth of playground equipment was installed this summer on the grounds of two ward schools in Auburn, the cost of the equipment being shared equally by the two bodies. During the months of June and July supervised play periods were held at the schools on certain days and evenings of each week under the direction of Miss Theda Waterman, the City School Nurse, whose services were retained for the summer months by the Kiwanis Club. In addition to supervising the games, Miss Waterman gave practical health talks to the children when they were gathered together on the playgrounds and extended her work along this line through home visitations.

Since the schools have opened for the

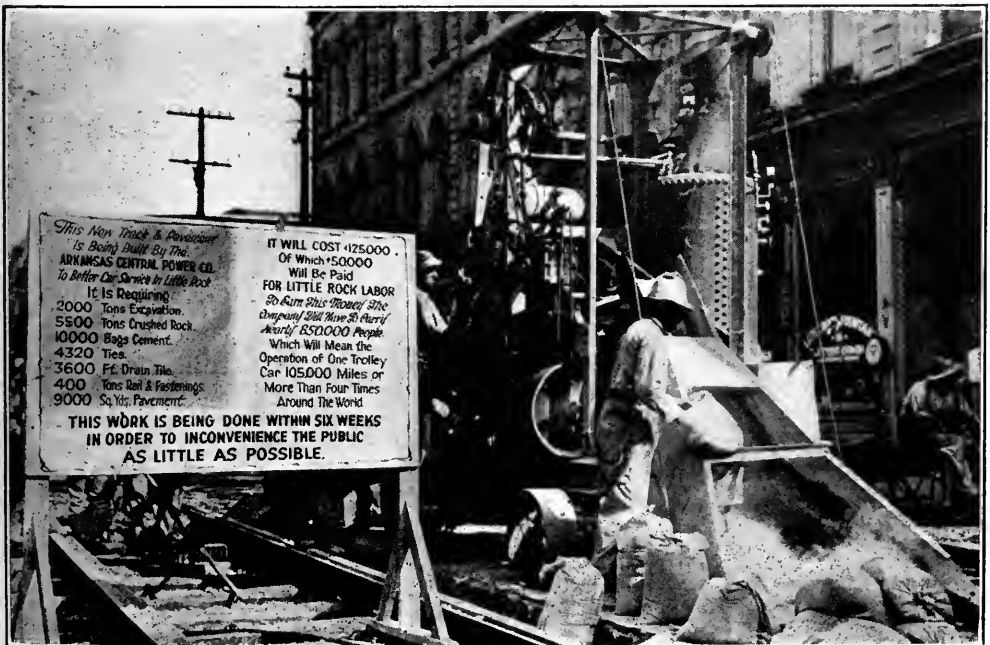
fall term, the teachers have become most enthusiastic over the opportunities now afforded the children for organized, worthwhile play, and the purchase of the playground equipment is proving to be one of the best investments ever made by the community.

A. M. NELSON,  
Superintendent of Schools.

### ***Progressive Publicity of Public Utility***

LITTLE ROCK, ARK.—The progressive publicity policy of one of Little Rock's public utilities, and the cheerful manner in which this utility undertakes to perform its share of the improvement of the city, are indicated by the sign shown in the accompanying illustration. Under its franchise, the Arkansas Central Power Company is required to pave between its rails and 2 feet on the outside thereof. West Markham and Victory Streets, in one of the busiest sections of the city, are now being repaved and the tracks relaid with the heaviest steel rails. The company's effort to complete this work in the minimum amount of time, in order that the public may be inconvenienced as little as possible, is winning the hearty praise of the citizens of Little Rock.

H. A. KNOWLTON, City Clerk.



HOW A PROGRESSIVE UTILITY TELLS ITS STORY TO THE PEOPLE OF LITTLE ROCK



## **Bureau of Health and Board of Education Cooperate in Public Health Nursing Service**

ASBURY PARK, N. J.—In September, 1922, the city of Asbury Park under the Board of Education and the Bureau of Health inaugurated a public school and public health nursing service that differed from the plans for nursing services that had been followed previously. Two nurses were secured who had completed the full public health nursing course at Columbia University—one, Miss Barbara Price, employed by the Board of Education, the other Miss Louise Bentley, employed by the Bureau of Health. The plan as developed separated the city into two districts, endeavoring to have the districts about equal in the work to be performed. One of the districts was allotted to the nurse employed by the Board of Education, the other to the Bureau of Health nurse, each nurse performing, in the district assigned to her, all types of public health nursing. This plan prevents overlapping of efforts, confusion,—only one nurse enters a particular home,—centers the district and thus saves time in transportation. The nurse becomes better acquainted with the people in her district, is able to gain their confidence to a greater extent, and thus render better and more complete service.

The Board of Education nurse is in charge of the school program, while the Bureau of Health nurse supervises the community work. For the school work the nurses assist the medical inspectors of schools in the annual physical examinations

of school children, notify parents of defects found, follow up the cases into the homes when necessary, organize nutrition classes, instruct and assist the teachers with health teaching, and make social investigations for the child's guidance clinic which has been working in Asbury Park. For the Bureau of Health the nurses visit the prospective mother, giving prenatal instructions, visit the homes of all babies up to two years, giving literature and suggestions where needed, attend the bi-weekly baby clinic, follow up reported venereal cases, and do the tuberculosis work entailed in maintaining a diagnostic clinic. No bedside nursing is done excepting in emergency cases and for demonstration to a member of the household.

The schools have decided to add another public health nurse and to have the truancy work performed by the nurse. When this additional nurse is secured, the city will be divided into three districts, and each nurse will be assigned to one of the districts and perform all the work in her district, as stated above.

After one year of operation of this plan we feel that it has been a great success, that the work accomplished has been greater and better than would have been done under the old plan of having two uncoordinated services, and we believe that the plan should be continued and extended. For this plan to work out successfully it is absolutely essential that the Board of Education, the Bureau of Health and the nurses work in harmony and with complete cooperation.

B. H. OBERT, Health Officer.

## **State Lands for Municipal Parks and Playgrounds**

THE New York State Association, through its State Park Committee, became interested in having some of the unappropriated state lands transferred to the localities in cases where these lands are useful for recreation or playground purposes. After an investigation of these lands, the Association drew two bills for presentation to the Legislature. The first of the bills provided for the transfer, at a nominal consideration, to municipalities, counties, and towns of unappropriated state lands for park, recreation, playground and reforestation purposes; the second, that lands not

transferred under the provisions of the first bill should be sold and the funds placed in a park fund for the extension and improvement of state parks. Both bills were enacted into law at the 1923 session of the Legislature.

This subject is discussed in a special issue of the "State Bulletin," issued jointly on September 15, 1923, by the New York State Association and the City Recreation Committee of New York City. This issue gives the location and description of state lands to be transferred to the city of New York for park, playground and recreation purposes.

## Increasing the Drawing Power and Educational Value of Public Parks

**T**HE gift last month of \$1,000,000 by John D. Rockefeller, Jr., to the New York Zoological Society not only is munificent in itself, but has served to draw public attention to the effective work of that organization for both education and recreation. To quote the *New York Evening Post*:

"The importance of the Zoological Society is not adequately appreciated by those who regard it as an organization for supporting two instructive amusements for children between four and eighty—the Zoo and the Aquarium. Biology and zoölogy cannot be studied without access to live fauna of all kinds. In scope the collections are surpassed nowhere. Naples has no better aquarium, London no better zoölogical garden. But we should also remember that under Director Hornaday the Society has been the head of a movement for protecting wild life which has been effective in all parts of the United States. The tropical research station, under William Beebe, is famous throughout the world of science. The publications of Curator Ditmars on reptiles are widely known. New Yorkers can take satisfaction in reflecting that the Society will now be as well supported

as our library, art museum, and natural history museum."

Few cities may expect to compete with New York in securing great endowments for a zoölogical society, but almost every important municipality can well afford to increase the drawing power and educational value of its public parks. The growth of our cities robs most children of the joy of companionship with domestic pets and increases the need for proper provision for animals and birds—domestic and otherwise—in the public parks. To provide added thrills for the youngsters and grown-ups does not necessarily involve large expenditures. It would be possible, for example, for many a city to provide for its citizens and visitors such a scene as that shown on the front cover of this issue, which will greet the delegates to the Atlanta Convention of the American Society of Municipal Improvements this month, if they visit Lakewood Park while in that city.

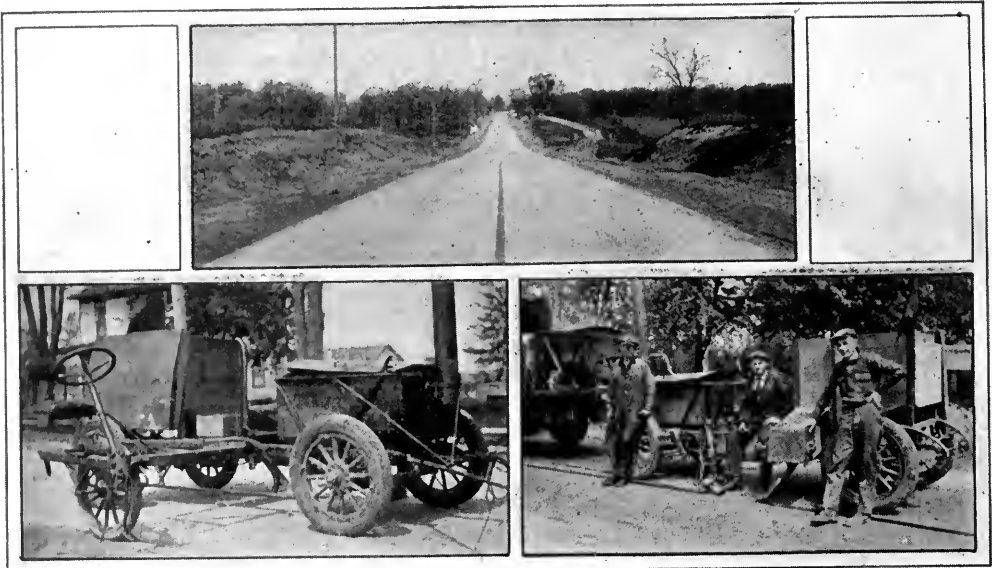
## Home-made Machines for Painting Center Lines on Pavements

**C**ENTER lines are being painted on the 416 miles of paving on the Minnesota trunk highway system to aid drivers to keep on the right side and nearer the pavement edges, thus preventing "side-

swiping" and like accidents. A special machine has been built at the State Highway Department shops to paint these strips on the pavement. The truck is one from the war surplus stock, as is also the guide



PAVEMENT CENTER-LINING MACHINE APPLYING PAINT TO ROADS IN MINNESOTA



METHOD OF MARKING TRAFFIC LINES ON CONCRETE ROADS IN ILLINOIS

wheel shown at the left, which has been taken from an old motor-cycle. The wheel was found to work better than a guide rod or chain. The truck carries several barrels of paint, a quick-drying, especially prepared mixture. Black paint is used on concrete paving, and white paint for black top paving.

According to E. M. Richter, in the *News Service* of the Minnesota Highway Department, operators report that results are best at a truck speed of 12 miles per hour.

#### New Machine in Illinois

The machine which has been developed by the Illinois Division of Highways under Clifford Older, Chief Highway Engineer, for marking the traffic lines on concrete roads, performs its work with great facility and a high degree of satisfaction. It is not claimed that the machine has been perfected to any great degree, but with it, it is possible to paint a 4½-inch strip on the pavement at a rate of 10 miles per day with

4 men. The material used is a semi-brown asphalt, which is the same material used in filling cracks in concrete pavement. The machine has an attachment for sanding.

In the upper illustration may be seen a long stretch of concrete highway with the center strip painted on. This photograph has not been retouched and shows with remarkable clearness the even, distinct strip. The photograph at the left shows the asphalt heating equipment and the sand box as well as the wheel which is used as a guide. This apparatus is towed behind a truck and is guided by a man seated at the wheel shown in the extreme left of the lower left-hand photograph. This makes it possible to maintain the painted strip at the proper distance from the side of the road when proceeding at a uniform speed, no matter what variation there may be in the path of the towing truck. The right-hand illustration shows the opposite side of the machine, with the nozzle through which the asphalt is fed to the pavement, and the sanding device.

#### The Need of Grown-ups for Play

All of us know that children need to play, but few realize that it is necessary for grown folks to play, too, if they would keep well, and live out their lives to the end that Nature planned. "Nearly all the degenerative diseases result from a lack of play," says a noted doctor. "Mentally and physically, we need recreation that really recreates, that relaxes tired muscles, that gives wearied nerves a chance to regain exhausted vitality."

Health is a state of perfect balance—of physical and mental and moral equilibrium. When work is balanced by play, exercise by rest, effort by sleep, body and mind and soul can function normally.—*Bulletin*, Indiana State Board of Health.

# The Snow-Removal Problem in American Cities--Part II

An Analysis of the Need for Snow Removal and an Outline of Methods Used in Various Cities.

## The Costs of Snow Removal

**A**CTUAL costs of removing snow are difficult to secure, as most cities make use of their regular street cleaning or street department employees for this work and charge only the item of extra labor to snow removal. In Plainfield, N. J., A. W. Vars, City Engineer, states that the removal of snow from the business streets is done by a special force of laborers, transportation being by the city's own trucks, occasionally reinforced by hired trucks or teams in emergencies. Last winter they spent about \$5,000 for extra labor.

P. L. Minor, Superintendent of Highways, Greenwich, Conn., reports that the total cost for clearing snow from 140 miles of road in Greenwich last winter was about \$6,500.

According to a report from Chicago, four men, comprising the crew of a Barber-Greene snow loader, were able to do the work of 50 shovelers at an estimated saving of \$450 per 8-hour shift. Public Works Commissioner Robinson of Schenectady, N. Y., reported that the acquisition of a new snow-loading machine brought the cost of snow removal in Schenectady down to about 40 or 50 per cent of the earlier figures. The pay-roll during the winter of 1922-23 amounted to about \$4,000 a week after the machine had been installed.

In New York City considerable reduction in cost has been effected through the introduction of modern methods and equipment, beginning in 1920. The zenith of efficiency and effectiveness was reached last winter when all of the equipment contracted for by the Department of Street Cleaning had been delivered and was called into service. The total fall of snow was 55.1 inches and some idea of the problem of removal may be had when it is realized that 36,000,000 square yards of street area had to be cleared, making a total of 55,100,000 cubic yards, weighing an average of 10



WHITE TRUCK EQUIPPED WITH CHAMPION PLOW REMOVING SNOW IN SIDE STREET IN NEW YORK CITY

pounds to the cubic foot. This volume is 21 times the volume of the large Municipal Building which houses the offices of all the municipal departments with the exception of the Mayor's. To do this work required 6,000 regular employees, 10,000 emergency laborers, and 1,000 vehicles from December 28, 1922, to March 17, 1923, including Sundays and holidays, a period of 80 consecutive days. The succession and depth of the various snowfalls in New York City last winter were as follows:

December	...	1922	1.6
December	14,	1922	2.7
December	17,	1922	0.2
December	28,	1922	1.5
December	29,	1922	2.0
January	3,	1923	6.8
January	4,	1923	1.7
January	7,	1923	1.1
January	11,	1923	0.4
January	14,	1923	6.6
January	24,	1923	1.6
January	28,	1923	3.7
February	6,	1923	6.3
February	7,	1923	0.4
February	10,	1923	3.3
February	11,	1923	2.8
February	12,	1923	2.3
February	13,	1923	0.3

February 20, 1923.....	1.8
February 28, 1923.....	0.7
March 6, 1923.....	5.2
March 7, 1923.....	1.6
March 10, 1923.....	0.5
	<hr/> 55.1

### Reports from City and County Officials

*Plainfield, N. J.*—A. W. Vars, City Engineer, reports that they plow their sidewalks with eight horse-drawn plows. The roadways of the principal streets are cleaned with plows attached to motor trucks. They have three plows—one Baker with an 8-foot blade and two Champions with 10-foot blades. Besides this, a local bus company which operates to the adjoining town of South Plainfield uses similar apparatus to clean the streets over which it runs. They district the city for each machine and lay out routes in such a way that throughout most of the city very few persons are more than two blocks from a cleared street. There is also a special "blizzard" schedule, including the principal highways throughout the city, over which plows are operated continuously in exceptionally heavy storms. They employ a sufficient number of drivers to enable them to operate the plows continuously day and night as soon as the snow has reached a depth of 4 or 5 inches, as this is thought to be vital to the successful solution of any snow-cleaning problem.

The street railway tracks in Plainfield are cleaned by motor plows and sweepers operated by the street railway company. Under its franchise the company must remove from the streets all snow swept from the tracks. This rule is not enforced in outlying sections, but there is a working agreement with the street railway company under which it pays half the cost of snow removal on the busy streets in the center of the city.

*Poughkeepsie, N. Y.*—In the main streets of Poughkeepsie there are trolley tracks and the space between the tracks and the curbstone on either side of the roadway is not very wide. According to a report from Burges Johnson in *Collier's Weekly*, the trolley company first clears off its right of way and throws the snow to one side of the street or the other. Then the storekeepers open up their shops and shovel the snow off the full width of their strips of sidewalk, throwing it into the streets. The result of this, after even an ordinary storm, is that there is a worse traffic jam than

there would have been if nobody had shoveled any snow at all. Heaped up snowbanks fill the two strips of roadway on each side of the track, and there is really more cleared space for pedestrians than for vehicles.

Mr. Johnson then reports the state of affairs in another town which he admits may have been in his dreams, but nevertheless the scheme is worth recording, as it has a practical application. In this mythical town the trolley removes its own snow as fast as it shovels it, and the storekeepers are not permitted to shovel all of their snow into the streets promiscuously, but into piles 8 feet apart and approximately 8 feet square. Each of these piles rests mostly on the sidewalk and partly in the street, about 3 feet of depth projecting beyond the curb, making it easier for the street commissioners' trucks and carts to carry it off.

*Johnsburg, N. Y.*—According to Charles S. Kenwell, Supervisor, town of Johnsburg, Weavertown, Warren County, N. Y., by the end of January, 1923, there was 4 feet of snow throughout the county. The 18-foot roadway was cleaned with a Baker plow mounted on a Ricker 5-ton truck, piling the snow as high as 4 feet at the side of the road. Failure to get the plow into operation early in December made it impossible to have the roadway open to its full width.

*Greenwich, Conn.*—P. L. Minor, Superintendent of Highways, reports that the snow-removal equipment in Greenwich consists of two large and one small Mack truck, one Nash truck and one GMC truck, each equipped with a Champion snow-plow. Each truck has a particular district to cover when snows begin. The roads in the thickly settled parts of the town are first taken care of, then the main lines of travel through the town, and finally the secondary roads. The snow is attacked as soon as enough has fallen for the plows to act upon. In addition to the equipment mentioned above, the town is fortunate in having the co-operation of a number of the large estates, whose owners aid in caring for the outlying sections of the town. The men manning the trucks take great pride in their work and make it a point to keep their districts quickly and thoroughly cleaned up. Mr. Minor says, "It is to these men, rather than

to anyone else, that we owe any good reputation we may have."

*Watertown, Wis.*—Reports from Watertown, Wis., signed by the Postmaster and by the City Clerk, show that during March, 1923, the severe snow-storms would have completely tied up mail deliveries and made most of the city streets and country roads impassable to traffic had it not been for the work of a Monarch tractor equipped with a 10-foot locomotive snow-plow. Roads were broken open to permit the delivery of mail and the transportation of materials for the local merchants and factories. Some of these conditions surpassed any experienced in recent winters.

*Woodbury, N. Y.*—W. A. McClellan, Town Supervisor, reports that the town appreciated the importance of keeping the roads open during the winter months and that two public meetings were called to discuss the proposition of raising funds by taxation for the purchase of suitable machinery to clear the roads. At this meeting it was the unanimous opinion of those present that machinery should be purchased and taxes levied to pay for it. A special election was held in the town, and the question was submitted to the voters whether or not \$8,000 should be raised for snow-removal machinery by taxation. The proposition was carried in the affirmative by two-thirds of the total vote. A 10-ton Caterpillar tractor with a 30-inch straight blade snow-plow was purchased. Before the tractor arrived there was an accumulation of about one foot of snow on the roads from the winter storms. The tractor cleared this without any difficulty and continued to keep the roads clear throughout the winter.

Woodbury is the first town in the county to purchase a tractor of this size for snow cleaning and they have reason to believe that the results obtained in keeping the roads clear materially helped in the decision of the Board of Supervisors of Orange County last winter to place its order for four 10-ton Holt tractors of the same type as that in operation in the town of Woodbury. The

machine travels at the rate of about four miles an hour and is operated by two men. They figure that it should do the work for at least ten years in the same satisfactory manner in which it has cleaned up snow-storms which previously kept them laboring for days with all the forces they could command.

*Portland, Maine.*—R. B. Redfern reports that a 10-ton Holt tractor equipped with a Sargent plow kept the 12-mile road from Yarmouth to Portland clear throughout last winter. The road is of macadam construction and is paralleled throughout the entire 12 miles by an electric car track. Last winter the total snowfall was 10 feet 1½ inches, which was the largest fall since the Weather Bureau records began in 1871. During one storm in January the engine became disabled, which was not surprising, as the machine was one built during war time and had been neglected since being turned over to the state. While repairs were being made, automobile traffic could not use the roads. With the exception of that one incident, automobiles ran the entire distance between Yarmouth and Portland throughout last winter. The 15 miles of road beyond Yarmouth to Brunswick was not opened until about the middle of April and no automobiles had been run over it for more than three months, while the first automobile traffic between Saco and Portland came through on April 4 over a very rough and difficult road which had not been taken care of by any snow-removal outfit during the winter.

*Hibbing, Minn.*—Martin Welch, Police Commissioner, Hibbing, Minn., reports that last winter one of the snow-plows owned



HOLT TRACTOR EQUIPPED WITH PLOW OPENING UP ROAD IN GREENFIELD, MASS.

by the town of Stuntz, hauled by a 10-ton Holt tractor, did some remarkable work, as the fall was exceptionally heavy, being nearly 5 feet deep on the level. This was aggravated by the fact that because of the extremely high winds and cold weather, the snow packed so hard that it was almost impossible to shovel it. The drifts were so hard that the tractor would run up on top of them and would stand there almost on end, then spin until it dug down to a solid footing, and as soon as any traction was secured the plow would be hauled ahead one tractor-length and the operation repeated again and again until the drifts had been penetrated. The tractor was run night and day during the whole winter. The snow was piled so high along the roads that fresh snow was crowded back outside of the right of way to 50 feet from the center of the road. The plow used weighs over 6,000 pounds and has a wing spread of 26 feet, the wings being  $3\frac{1}{2}$  feet high.

*Keiser, W. Va.*—According to B. E. Gray, Division Engineer, State Road Commission of West Virginia, stationed at Keiser, W. Va., the snowfall during the winter of 1922-23 was relatively light and at infrequent intervals. On the Winchester and Williamsport Pikes, leading from Martinsburg, a total distance of 25 miles, a Champion snow-plow attached to the front of an FWD 3-ton truck was used. No difficulty was experienced when the removal was completed before the snow had had time to harden either from traffic or from thawing and freezing. It is good practise to start with the snow-plow before the snow has ceased falling, for the snow is then loose and can easily be pushed to one side. They have found such a difference in this regard that it is now standard practise to have the snow-plows start operations as soon as 6 inches of snow has fallen. In Morgan County on the 6 miles of concrete road from Berkeley Springs to Hancock, Md., truck snow-plow equipment is not justified on account of the expense. At the same time, it is very necessary to remove the snow from this road so that traffic can keep on the concrete pavement and prevent the cutting up of the earth shoulders. An experiment was made by using a light earth road grader, drawn by horses and later hauled by a truck. The blade of the grader was set to throw the snow from the center

of the road to one side, and perfectly satisfactory results were obtained at a low cost. Where there is 20 miles or more of continuous highway to clear, however, it is found that the truck equipment is the more economical on account of the speed with which the operation can be carried on. During the coming winter, it is expected that snow removal will be carried on over 50 or 60 miles of road. Both Champion and Baker plows have been used, but it was found that a  $2\frac{1}{2}$ -ton truck was not heavy enough to adequately handle the snow-plow attachment. A 3-ton truck, however, provides the necessary power.

*Somers, Westchester County, N. Y.*—According to Thomas Flood, Superintendent of Highways, Town of Somers, Westchester County, N. Y., the question of snow removal is a serious one in a rural community where most of the people commute and are forced to get to their trains by automobile. Last winter a 3-ton motor truck with a 10-foot Baker snow-plow mounted in front of the truck was used in Somers with highly satisfactory results, as the heavy snows were not drifted very badly. They start just as soon as the snow begins, and shove it back as far as possible to make room for the snow of the next storm. Experience shows that if any of the snow is left on the road there is liable to be a thaw and freezing which will make the roadway a sheet of ice, giving no satisfactory traction for the truck. Some people complain that it is a waste of money to operate a truck and snow-plow after a small snowfall, but it is absolutely necessary to keep the roads clear.

*Weymouth, Mass.*—While in other towns near-by the roadways were deep in snow last winter so that trucks and motor cars had to wallow their way along or get stuck for hours at a time in deep snow-drifts, the streets of Weymouth were maintained smooth and hard. According to Irving E. Johnson, Superintendent of Streets, Weymouth, Mass., enough snow was left for the use of farmers' sleighs, yet not enough to hinder the heavy commercial trucks and passenger cars passing through the town. The winter of 1921-22 did not furnish enough snow to give the Champion plow owned by the city a good test, but it was used steadily during the winter of 1922-23 on a  $2\frac{1}{2}$ -ton truck,



# Library and School Cooperation

Branch Libraries in Schools and Other Service

By **George F. Bowerman**

Librarian, The Public Library, Washington, D. C.

**A**LL cooperation between public schools and public libraries is based on the fundamental idea that "the public library is a supplement of the public educational system"—as it is declared to be in the Act of Congress creating the Public Library of the District of Columbia. To be successful, there must be a spirit of cordial cooperation between the two boards and their executives, the superintendent of schools and the public librarian. The consensus of opinion is that public library interests are less likely to be minimized if there is no organic connection between the two boards, each of which is devoted to making its own part of the local educational work as successful as possible. Fundamentally, the school is engaged in the work of instruction, in which the trained teacher imparts education to young folks chiefly through the medium of text-books. The library's work consists in supplementing and complementing school instruction; the trained librarian brings forward the best books (other than text-books) for the voluntary use of children in school and of adults beyond school age.

The library needs the school to give the basic education to fit the individual to use the library; it needs that the school should point the impressionable child to the library as an agency through which it can round out and continue its education. The school needs the library to furnish live illustrative material to supplement and vitalize the text-book; the school, in order that its work shall not cease or be perverted when school days are over, is interested in seeing that its sister, the library, takes over the educational process and carries it on indefinitely. The more complete this cooperation and the earlier it can be established, the better the results.

In this article, the Washington situation will be outlined, but the experience of other cities will also be utilized. Although there is no organic connection between the school and library boards in Washington, it not

infrequently happens that the directorates are to some extent interlocking. Usually the superintendent of schools is a member of the library board. In several states this is required by law. But in Washington there have always been the closest working relations between schools and libraries, with good results on both sides.

Children's rooms under the direction of trained experts are conducted in the central library and branches. A large part of their work is assisting children with composition work. Story-telling material, mounted pictures and pedagogical books furnished to teachers are, of course, now commonplaces of public library service.

## Hampers of Books to Grade Rooms

Somewhat general, also, is the plan, developed to a high degree in Washington, by which the Public Library sends hampers of books to all grade rooms. These collections usually consist of as many books as there are pupils in the room. They are composed about half of books of fiction and half of non-fiction, but all are carefully graded. The teachers usually leave to the library's supervisor of school work the selection of books to be sent. Books are sent for lending to pupils for home reading. They are exchanged every two months, and such exchanges coincide with changes in the courses of study. Teachers are warm in their praise of this service, and many of them regard it as indispensable for the most effective teaching. Although this special work for schools was originally established in part because the library altogether lacked a system of branch libraries, it is believed that it should be continued even when the library's branch system is fully developed. Through the library books and the teacher's interest, which this plan fully enlists, it is possible to get excellent results—reading that is voluntary, but at the same time directed by the teacher. As a result, the children love the varied collections of attractive books sent by the

Public Library. Their attitude toward the voluntary reading of such books is in marked contrast with their usual antipathy towards the required perusal of books for supplemental reading.

In some cities it has been found possible to bring classes to public library centers to learn to use library card catalogs and reference books. Sometimes stereopticon lectures are employed to instruct in the use of books; for example, to show the difference between a table of contents and an index, how to use a dictionary or a cyclopedia, how to hunt up material with the help of magazine indexes.

Public library cooperation also extends up through the high school, the library sending books to supplement the restricted collections of the high school libraries. Generally speaking, the high school libraries consist of reference books and other material wanted continuously or recurrently. They draw heavily on the public library's ampler and more varied collections to meet occasional and seasonal demands. High school teachers and librarians also send pupils to the public library and its branches for reference work involving the use of

the bound files of the *Congressional Record*, of periodicals and other material more advanced than that possessed by high-school libraries.

#### Branches, Sub-Branches and Stations

The recognition on the part of the school authorities of the large and constantly increasing service of the Public Library to the schools finally resulted in Washington, not long since, in the adoption by the Boards of Education and of Library Trustees of the long-pending proposal of the Public Library for the establishment of branch libraries in certain school buildings. On the Library's part this proposal in part grew out of the slowness with which its system of separate branch libraries was being developed, and in part from the belief in the reasonableness of the proposal as an economical and effective method of furnishing library service to the population not served by branch libraries in separate buildings.

The program for library development in the District of Columbia includes (1) the erection, on sites to be provided by appropriations, of seven separate branch libraries, built only in the thickly built-up portions



CENTRAL BUILDING OF THE PUBLIC LIBRARY, WASHINGTON, D. C.

of the District, and (2) the establishment of a series of branches, sub-branches and stations in certain selected school buildings (both for white and colored pupils) in suburban districts, including especially junior high schools.

Such branch libraries in schools will of course first serve the teachers and pupils, but they are also designed to be neighborhood libraries. The first of such branches is about to be opened in the new Eastern High School. In this case there is to be a high school library on the second floor; the branch of the Public Library will be on the ground floor adjoining the main entrance. In two junior high school buildings just contracted for, there will be no separate school libraries; the branch libraries will serve school needs and juvenile and adult populations.

A few details of the plan may be of interest. Branches in schools will have their own staffs and their own permanent collections of books but, like other branches, will draw on the resources of the main library. Sub-branches will have smaller permanent collections and will draw more heavily on the main library or neighboring branches. They will be conducted by the staffs of branches to which they are tributary. Stations will be still smaller collections, conducted by paid librarians.

### Equipment and Administration of Branches

In the equipment of such branches, the agreement between the school and library boards provides that the Board of Education shall furnish all permanent physical equipment, such as built-in shelves, closets, toilet facilities, cloak rooms, etc. The Board of Library Trustees will furnish movable equipment, such as tables, chairs and desks, and also the books, periodicals and technical library supplies. In the matter of maintenance the school board will furnish heat, light, telephone service and

janitor service (also covering periods when the schools are not in session). The library board will furnish professional library service and transportation of library books and supplies.

In the administration of the branch libraries in the schools, the agreement provides that, in all matters concerning their professional conduct, the library staff shall be considered a part of the staff of the Public Library and all appointments and transfers shall be made by the public librarian. In matters concerning heating and the physical side of the branches, and the relations with the janitor, the library staff shall be considered a part of the school organization. Other administrative decisions, including those on hours of opening, shall be by agreement between the public librarian and the superintendent of schools. Regulations made by the Public Library for the use of the branch, so far as they concern school pupils, are subject to the approval of the superintendent of schools.

The plan for the conduct of branch libraries in schools as outlined is not yet in effect but will be tried out in the school branch about to be opened and in others projected. In a number of other cities, the same general plan is in operation, including such cities as Grand Rapids, Toledo, Newark, Minneapolis, Kansas City, St. Louis and others.

Readers of this article who may wish to make a further study of this plan should secure from the St. Louis Public Library its monthly bulletin for July, 1922, which is entirely devoted to a summary of reports from other cities of their experience of branch libraries in school buildings. The writer will also be glad to send the 1922 annual report of the Public Library of the District of Columbia, containing the agreement between the Board of Education and the Board of Library Trustees on this subject.

## War Memorials in the Smaller Communities

SINCE the publication of the article on "Art and Ideals in War Memorials" in THE AMERICAN CITY for February, 1923, further inquiries have been made as to the status of the war memorial movement in municipalities of less than 10,000 population, and reports from 103 such communities have been received. No definite action looking towards a war memorial has been taken in 32 of these places. Of the remainder, 49 report memorials completed

or under construction, and 22 report such projects as proposed. The types of memorials are:

Type of Memorial	Completed or under Construction	Proposed
Memorial buildings.....	13	8
Parks .....	4	—
Monuments and statues.....	7	—
Trees .....	3	—
Tablets .....	4	—
Miscellaneous .....	8	2
Type not determined.....		12



MEMORIAL HALL, MASSACHUSETTS AGRICULTURAL COLLEGE

## Four Types of War Memorials

A Building, a Field, a Memorial Circle, and a Bridge

### *M. A. C. Memorial Hall*

**I**N memory of fifty-one Massachusetts Agricultural College men who lost their lives in the World War, a Memorial Hall, to serve as a student union building, has been erected in Amherst on the college campus.

The movement was inaugurated in the spring of 1919, by the students, in a campaign which netted about \$40 per student—a total of some \$25,000. To carry the project to completion, a memorial committee was organized by the alumni and incorporated as the Associate Alumni of M. A. C. Through this source the remainder of the \$150,000 required for the Memorial Hall was raised, the average alumni pledge being over \$104.

Above the fireplace in the Memorial Room is a tablet bearing an inscription which President Butterfield had seen on the

gravestone of an American soldier in a French cemetery—"He ventured far to preserve the liberties of mankind." The inscription on the front of the building is, "We will keep faith with you who lie asleep."

### *Vineland's Memorial Circle*

**A**DJOINING the northern boundary of the borough of Vineland, N. J., is Landis Park, a reservation of about forty acres, deeded to the community by its founder. A recent improvement in this park is the Soldiers' and Sailors' Memorial Circle, a tribute from their fellow citizens to the men of Vineland who made the supreme sacrifice in the World War.

In this unique memorial the ancient symbol of the mystic circle has been maintained, the primeval trees forming the confines—a tree for each fallen patriot, beneath which



THE MEMORIAL CIRCLE, VINELAND, N. J.

a simple granite stone records his name—while at the entrance is set a massive monument of the same stone, the record tablets in all cases being of bronze. An encircling parapet encompasses the whole, and broad cement walks traverse it, while above the trees from the summit of a staff floats the American flag.

Near the Memorial Circle is another reservation of circular design—"The Mothers' Garden of Remembrance." This beautiful tribute to the mothers of the nation is a fitting recognition of their sacrifices for country and flag. A privet hedge marks its confines, with handsome brick pillars and an iron gate. A little stream runs through the enclosure, restful with lilies and semi-aquatic plants. The perennial flowers and evergreens, emblematic of a mother's lasting love, find prominent expression in this beautiful garden.

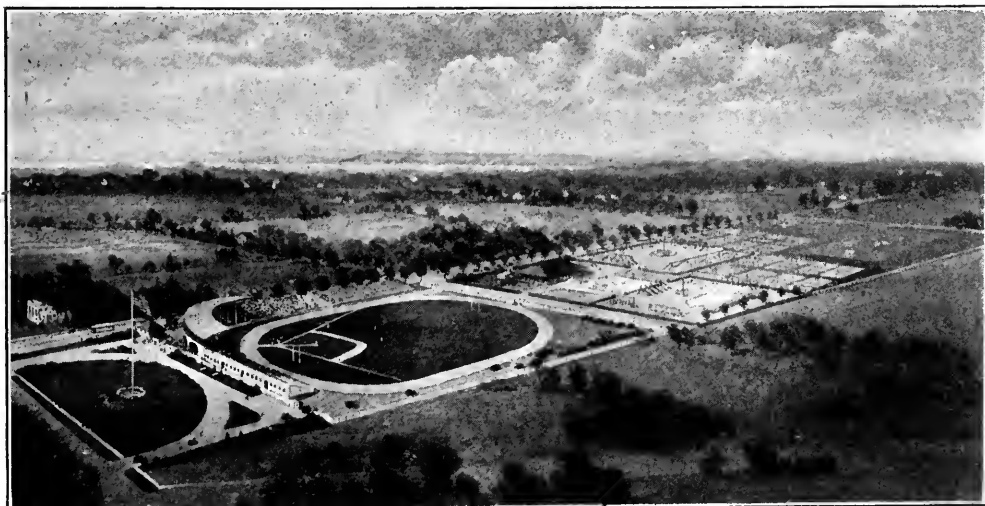
Both the Memorial Circle and the Mothers' Garden were designed by W. H. Fenton, a local landscape architect, and executed under the auspices of the City Beautiful Committee.

### *Flushing's Memorial Field*

**A**N ambitious project for a playfield memorial to the seventy young men and women from Flushing, N. Y., who died in the World War is being undertaken by an organization incorporated under the name of Memorial Field of Flushing, Inc.

In July, 1921, title was taken to a tract of land comprising nearly 15 acres of approximately level ground, to the northeast of the present population center of the old village of Flushing. The location is believed to be an admirable one, as the movement of this center of population is directly towards the field. The communities to the north and east are also growing rapidly towards the field. It will probably be only a few years, therefore, before the Memorial Field will be closely surrounded by residence communities on all sides, and the far-sighted planning of this playground and athletic center will be fully appreciated.

The project was undertaken with an original expenditure of \$30,000, which made possible the purchase of the property, the



PLAN OF MEMORIAL FIELD, FLUSHING, N. Y.

erection of a concrete fence and wooden grand stand, and the laying out of a football field. During the present summer a running track and a baseball diamond have been completed. The field has been used not only by high school teams, but by amateur and semiprofessional teams, as well as by neighborhood groups.

The plans which it is hoped to carry out, as further funds become available, are shown in the accompanying illustration. The first section, 200 feet in depth, forms the approach and provides a place for open-air meetings and patriotic exercises. Approximately in the center of this portion is a large flagpole, presented by the William A. Leonard Post of the American Legion, while on the concrete fence facing the flagpole is a bronze memorial tablet bearing the names of the Flushing men who died in the war. In front of this tablet, and extending 75 feet on each side of it, is a plot to be known as sacred ground, which will be planted with suitable shrubs.

The second section of the field, enclosed by the concrete fence already erected, will be used for competitive games, to which an admission fee will be charged; while the third and largest section, of about seven acres, will be free to all the people at all times. It will contain a field house, sixteen tennis courts, a baseball diamond and football field, and complete playground equipment, with facilities for more than 200 children.

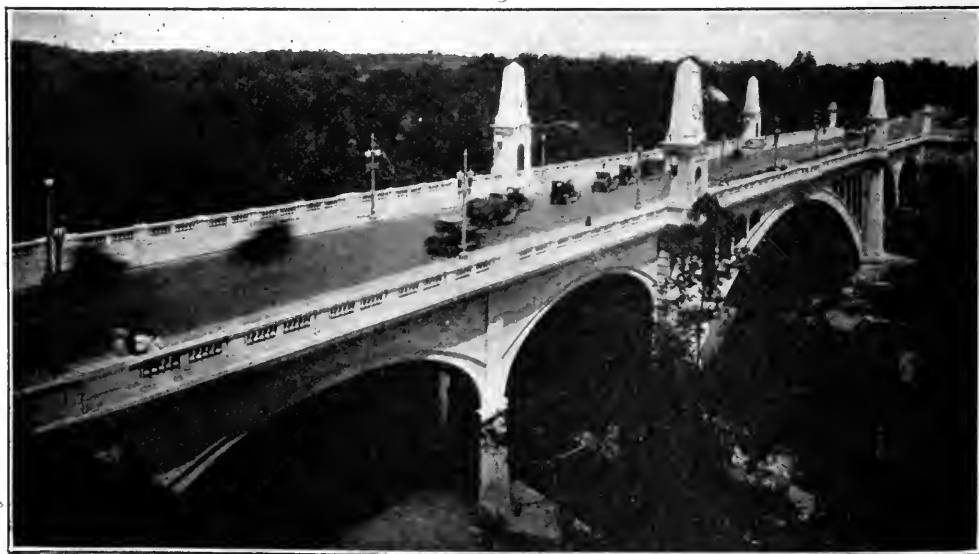
### *A County Bridge as a War Memorial*

**A** MONUMENTAL structure, officially named the Washington Memorial Bridge, spanning the historical Brandywine Creek in the city of Wilmington, Del., has been dedicated by New Castle County as a war memorial. This bridge, enhancing the beauty of the natural scenery in a locality that was the theater of stirring events during the War of the Revolution and that is inseparably associated with the name of General Washington, not only commemorates the patriotism of the citizens of the state of Delaware in the Revolution and subsequent wars, but also serves to carry the important vehicular traffic of the Washington Boulevard.

The new bridge, which is 720 feet long and 72 feet wide, consists of five reinforced concrete arch spans—two at 70 feet, one at 250 feet and two at 85 feet—together with the necessary approaches. Each span consists of three arch ribs, 11 feet, 16 feet and 11 feet wide, respectively. The deck of the bridge consists of a 40-foot roadway paved with sheet asphalt, two sidewalks 14 feet 9½ inches in width, and two balustrades or railings 1 foot 2½ inches in width.

The piers of the bridge are on a 30-degree skew, and the large 250-foot span of 40-foot rise is probably the longest low-rise skew-arch span in the United States, if not in the world.

While the character and design of the



WASHINGTON MEMORIAL BRIDGE, WILMINGTON, DEL.



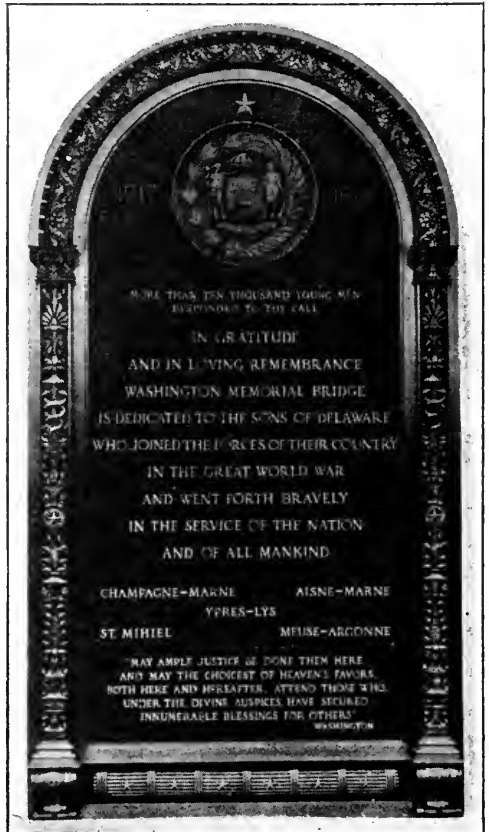
**PYLON ON MEMORIAL BRIDGE, WILMINGTON, DEL., BEARING NAMES OF SOLDIERS, SAILORS AND NURSES KILLED IN THE WORLD WAR**

entire bridge are of a decided memorial nature, the distinctive memorial features are embodied in the four bronze tablets, 9 feet high by 5 feet wide, each placed on a monumental pylon or shaft. One tablet commemorates the Revolutionary War, one commemorates the War of 1812, the Mexican, Civil and Spanish-American Wars, and two tablets commemorate the World War—one having the names of the great battles in which Delaware troops fought and the other bearing the names of all those service men from Delaware who made the supreme sacrifice.

There are eight of the ornamental pylons placed on the bridge in line with the railings. The four larger shafts are placed over the piers of the large central arch, and two of the smaller shafts at each end of the bridge. The large shafts extend 40 feet above the sidewalk level, and the smaller shafts 23½ feet. The bronze tablets are placed on the inside faces of the shafts, where they can be viewed by pedestrians on the sidewalks. On the inside faces of the smaller shafts are placed bronze name-

plates 3 feet by 4 feet. On each side of the large shafts and on the approach sides of the small shafts are placed large, ornamental bronze lanterns, which are illuminated by a single incandescent Mazda lamp of 250 candle-power. On the inside and outside faces of the large shafts are placed carved Onondaga Litholite eagles and shields of a monumental character. The balustrades or railings were made of Onondaga Litholite to harmonize with the surface treatment of the memorial shafts.

At the center of the span of the large arch a refuge bay was provided on both sides of the bridge by extending the sidewalks slightly beyond the line of the railing, thus forming a vantage point from which pedestrians might pause and view the park below. Refuge bays were also provided at both ends of the bridge. Stone seats were placed at the refuge bays at the north end of the bridge to accommodate



**TABLET ON MEMORIAL BRIDGE, WILMINGTON, GIVING NAMES OF WORLD WAR BATTLES IN WHICH DELAWARE TROOPS FOUGHT**



pedestrians who might desire to sit and rest. Large ornamental precast stone urns were placed on the end posts of the railing of the refuge bays at the north end of the bridge.

The lighting system of the bridge was arranged so as to harmonize with the pylons and railings from an architectural standpoint, as well as to give the proper lighting effect to the sidewalks and roadway at night. The main lighting system consists of twenty-eight luminous arc lights supported by cast iron light poles placed on the curb lines of the bridge. The secondary lighting system consists of the incandescent Mazda lamps in the twelve large bronze lanterns placed on the shafts and the two bronze standards at the stairway. The two lighting systems are on independent circuits.

The bridge was designed to carry the heaviest modern highway traffic, and liberal provision was made for impact and possible future increases in traffic requirements. The assumed loads used in the design were 60-ton electric railway cars en train on double tracks, a line of 20-ton motor trucks on the roadway at each side

of the tracks, and a sidewalk load of 100 pounds per square foot.

The construction of the bridge was financed by a county bond issue authorized by state act. Its purposes were carried out by a commission, of which Alfred I. DuPont was chairman. From ten sets of competing plans, the general design submitted by Benjamin H. Davis, consulting engineer, of New York City, in the preparation of which Vance W. Torbert, architect, had collaborated, was selected by the commission. Frederick W. Carpenter served as local executive officer and consulting engineer of the Washington Street Bridge Commission. The Walsh Construction Company, of Davenport, Iowa, was general contractor for the construction of the bridge, which, with all its memorial features, was completed at a cost of \$751,981, exclusive of engineering costs and the commission's incidental expenses.

It may be of interest to note that the cost of the war memorial features, in excess of the purely utilitarian requirements of the bridge, was in this case approximately \$56,550—less than 8 per cent of the entire cost of the structure.

## Holding Community Support for Welfare Programs\*

**W**HEN community support in the organization of a tuberculosis program has been secured and when a certain amount of public opinion has been aroused, how best can public opinion be held? A few simple principles may be of value:

### 1. *Adopt a Real Program*

First of all, adopt a real community program, one that will fit the needs of the community and will give as many people as possible something to do. A program that appeals to only a few and that lacks democracy in its preachment and in its practise will not hold public opinion. The more the community feels that the program is its own, that each one has a share in it, the more readily will it co-operate.

### 2. *Variation*

Vary the method and program from time to time. The stress should not always be upon the same thing. The community gets tired of hearing the tuberculosis association "harping upon one string." Without doing violence to the program, and because of its very broadness and extent, the emphasis can be placed in different years and at different seasons upon different things, and thus the interest of the community can be constantly stimulated.

### 3. *Varying Motives*

Appeal to different motives, selfish and altruistic, for example. Some people will be interested because of self-interest; some from a humanitarian point of view; others will feel a conscientious or religious urge. Analyze the motives and moods of the community and appeal to these varying moods and motives at different times and to different groups.

### 4. *Information*

Above all, keep the public informed. No program can succeed that does not keep the public fully informed of what is going on. It is a responsibility that the tuberculosis worker owes to his constituency.

### 5. *Ask the Public to Help*

Finally, ask the public to help. The public will support the program only as it is asked to help in it. It should be asked to help financially and in other ways. The value of the financial campaign is not only in the money secured; it is in the interest stimulated. If the financial campaign secures only money, it loses half of its objective.

\* From a chapter on the Psychology of Community Organization in the new book, "The Tuberculosis Worker," by Philip P. Jacobs, Ph. D., Publicity Director, National Tuberculosis Association; published by William & Wilkens Company, Baltimore, Md.

# The Economics of Culvert and Small Bridge Design

A Comparison of the Cost and Merits of Different Types, and a Glance into the Future

By E. L. Miles

County Road Superintendent and County Engineer, Victoria County, Ontario

**W**ATER is by far the greatest enemy of road builders in the province of Ontario, because the winters are severe, the spring run-off rapid, and summer storms heavy. No matter how well the surface of the road is constructed for the traffic it is expected to serve, if water is allowed to accumulate and soak into the road or to run over it, the surface is bound to be injured by heaving, washing or softening.

With this in mind, there are at least three points to watch:

1. The spring run-off and summer storms must be allowed to pass freely through the culverts.
2. The surface of the road must be high enough to be free of capillary attraction from the ordinary water-levels in the ditches in the fall of the year.
3. The drain from the surface of the road must be through the ditches and must not be

allowed to stand and soak back into the road.

Of these three points the first is probably the most important.

Many landowners and a few road builders believe that the road ditches should be used as drainage canals, carrying water for long distances to definite outlets or bridges. The result is that snow and ice block the water and permit it to run over the surface as well as to soak into the road. Efficient road drainage is as essential to road building as land drainage is to agriculture, and the water must be allowed to pass from one side of the road to the other as quickly and as often as possible and be kept away from the road altogether in its original and natural course.

## Pipe Culverts

It is economy to place culverts in all run-



PEARN'S BRIDGE, THREE MILES WEST OF FENELON FALLS, ONTARIO, AN ATTRACTIVE REINFORCED MONOLITHIC ARCHED TYPE BRIDGE, BUILT IN 1921, WITH A 30-FOOT SPAN

ways of small streams, notwithstanding the fact that they may operate but once a year, and it is wise to adopt a minimum size in order that their operation may be assured and not always be subject to blocking by ice, snow, grass or weeds.

There is but little value in an 8- or 10-inch pipe culvert either across the road or at farm crossings in the ditches. Twelve-inch pipe might be used in ditches near the summit of a watershed, but 15-inch should be the minimum for ordinary cases; 18-inch culvert should be the minimum across the road, and larger sizes used according to the acreage drained and the slope of the land. The maximum pipe culvert should be 30 inches, limited because of the additional area obtained in the box type without extra expense. Headwalls should be constructed on all pipe culverts after the construction of the road, allowing the full standard width of road between them. All pipe culverts should be carefully inspected in the fall of the year and cleaned of grass, weeds, driftwood, etc., and then again in the spring when the run-off is taking place.

With regard to the second point, if the road surface can be raised above the influence of capillary attraction, there need be no cause for worry from standing water in swamps or lowlands. Three feet above ordinary water-level in such cases is usually sufficient.

In regard to the third point, the crown of roads for fast and frequent traffic does not effectively discharge the water from the clay or gravel shoulders, and therefore the shoulders should be crossed at regular intervals of not less than 50 feet by stone drains, constructed so as to allow efficient drainage a few inches below the metaled or paved portion of the driveway. The water will then run off the edges of the pavement to the drains and thence to the ditches, without soaking under it.

#### **Costs of Laying Culvert Pipe**

In considering the cost of laying culvert pipe, it is necessary to realize that concrete or clay pipe must be laid in a concrete casing, in order that safety from collapse shall be assured under heavy traffic, and also that metal pipe when galvanized and corrugated may be laid without assuming this risk.

Changes, interchanges and transporta-

tion are the three essential points of pipe culvert construction as applied to road building. County and township superintendents are constantly installing new culverts and replacing old ones, and they are not always able to place the new culvert in its final position before the road is constructed. As no concrete or clay culvert pipe should be placed across any road without being encased in 6 inches of concrete, the factor of "change" is cut out. To change such a culvert usually means to destroy it entirely, so the factor of interchange is also cut out—a most desirable privilege for all engineers.

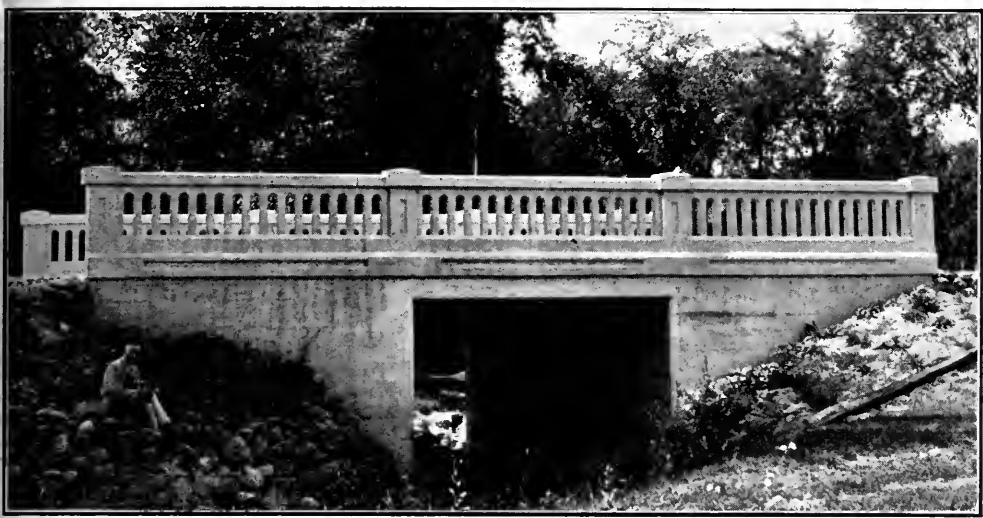
The question of transportation means that a 2-ton truck with a body measuring 74 by 120 inches can handle twenty 15-inch, fifteen 18-inch, or eight 24-inch concrete or clay pipe without stacking or crowding. An 18-inch culvert 30 feet long requires 12 lengths of 2½-foot pipe; a truckload is 1¼ culverts, whereas the same truck will carry 7 metal pipe culverts at the same cost without any risk or breakage. From this I have figured that corrugated iron pipe is about 62½ per cent cheaper to lay than concrete or clay pipe.

#### **Box Culverts and Small Bridges**

The ruling of the Department of Highways for the Province of Ontario with regard to the designation of bridges is determined by the length of the span in feet. All structures measuring 10 feet and over are regarded as bridges and are subject to the approval of the Department in all particulars. Structures having a span of less than 10 feet are classed as culverts. In both cases the structure is usually of monolithic concrete, and the engineer plans the work subject to two great factors affecting the success of construction—(1) suitable material and (2) efficient labor.

Gravel is the principal material used for such work, and almost every pit is graded differently. To get the greatest efficiency from gravel as found in the pit, a few simple field tests should be made, to determine the amount of vegetation, the amount of silt, the percentage of coarse aggregate, and the percentage of voids.

Vegetation can be determined by careful examination or by washing the material in a bottle. Silt can be measured by washing the material in a bottle and allowing the



**SUCKER CREEK BRIDGE, ONE MILE SOUTH OF LINDSAY, ONTARIO, ON THE LINDSAY-PETERBOROUGH HIGHWAY**

This reinforced monolithic concrete slab type bridge with a span of 12 feet was built in 1921

mixture to settle. It should not be more than 3 per cent. Coarse aggregate should be over one-half of the total material retained on a  $\frac{1}{4}$ -inch mesh screen. The proportion of water that can be poured into a given quantity of gravel will equal the proportion of cement required.

The proper quantity of water to use in making the concrete is measured by the slump test; that is, a column of fresh concrete should retain its shape when turned out of a cone and not run or settle down into a shapeless mass. For the foundation work it should not settle more than 12 per cent, and for reinforced concrete not more than 20.8 per cent.

#### **Obtaining Good Concrete**

Tamping and spading is a great factor in securing good concrete, and this should be done as much as possible while it is being deposited in the forms. Not only does this remove all the air bubbles, but the concrete surface shows the result when the forms are taken off, and much less rubbing and plastering is required.

In the construction of all beams, floors and headwalls, it is considered safe, sane and economical practise to wash the gravel, that is, to run it through the mixer just prior to use and pour off the dirty water.

In making the foundations for small bridges it is essential that a secure bottom shall be found, but in most cases this

is not difficult. In swamps, however, where the stream is winding and sluggish, it so happens that considerable depths of muck and soft clay are frequently encountered. In these cases it is not essential to reach the bottom of the muck with the concrete, but instead a pile foundation can be driven, using a follow block so that the head of the pile will be 3 or 4 feet down in the muck. Then, by driving sheathing to act as forms, the muck can be pumped out to the depth required and the concrete placed a foot or so below the top of the piles and brought up to a point about 6 inches above the water-level. On top of these foundations, the bridge can be constructed without danger of settlement or collapse.

Concrete can be successfully poured under water by exercising a little care. A very good method is to pipe it through the water, keeping the pipe always filled above the water line and by moving it around on the bottom so as to let the concrete out. After the bottom course of about 8 inches has been placed, the forms can be pumped out and the concreting continued under ordinary conditions.

Reinforcing of concrete culverts and bridges is placed mainly as a strengthener for good concrete, but it should also be placed as insurance against poor workmanship, such as in wing walls where no load is to be carried.

### Will Present Bridges Last?

I believe that every concrete structure should bear the date when it was completed, in some conspicuous place along the coping wall. It will be interesting for future generations to note two features: first, the condition of the concrete according to its age; and second, the wisdom and foresight of the present-day designers. Already, we are blasting out narrow concrete culverts erected as permanent structures ten years ago. In some cases the concrete is too poor to use even in a foundation of a new structure.

What will happen in 1933 or 1943? Will the present 20-foot roadway structure be adequate for the demands of traffic? I do

not think so. Will they find the structure of suitable construction to provide for additional width of roadway? I am afraid not. The old structure will have to be destroyed and a new one built, unless we get away from the class of permanent structure that we are now building. The fact that 90 per cent of the total output of motor cars for the year 1922 was sold up to May 1, 1923, gives an idea of the rapid increase in the number of vehicles, the huge amount of money invested in them, and the duty that falls upon the engineer to provide proper adequate roadways for this modern method of transportation.

ACKNOWLEDGMENT.—From a paper read at the Tenth Annual Convention of the Canadian Good Road Association, Hamilton, Ontario.

## Business Men Find Street Lighting Invaluable

The Experience of Lima, Ohio, When the Lights Were Shut Off for Three Nights

IT is almost impossible to imagine a city of 50,000 without a street light during three long winter nights, yet such was the case at Lima, Ohio, last December when for three nights the streets of the entire city were in darkness and for five nights more the streets outside of the business district were unlighted. At sunrise on the morning of December 1 every street light operated by the city was turned off by the order of the City Commission. This slashing of the city's operating expense followed the refusal of the Lima voters at the November election to ratify a 2-mill tax levy. In consequence, the City Manager declared that there was not enough money in the city treasury to pay for the current for the street lighting system and maintain some of the other municipal departments. The Commission declared that it would operate the city government only on funds available and would not incur indebtedness. "Pay as we go or don't go" was the motto.

On December 5 an order restoring

illumination of the city streets was issued by the City Manager following the presentation of a check for \$900 to the City Commission at a special meeting by a delegation of business men. At 5:10 the same afternoon boulevard lights throughout the city were turned on again. At the special City Council meeting referred to the following letter written by business men was presented:

"Realizing the unfortunate position in which the citizens of Lima find themselves with reference to the failure of the boulevard lighting system to burn, we, the undersigned, respectfully ask your honorable body to turn on all lights known as the boulevard lighting system at once, and we guarantee the payment of \$900 to cover the cost of same for a period of 30 days."

The signers of the letter told the City Commission that they fully realized the seriousness of having the lights turned off and the condition was causing a loss of thousands of dollars' worth of business during the Christmas shopping season.

## Maintenance Costs for Gravel and Concrete Roads

THE New York State Highway from Chatham to East Chatham and thence on to New Lebanon, N. Y., where it connects with the Albany-Pittsfield State Road, is to be built in 1924 of concrete. The

records of the State Highway Commission show that last year the average cost of maintenance of concrete roads was \$100 per mile, whereas the maintenance cost of a mile of gravel road ran as high as \$1,500.

# Carrying on the Mayor's Job

The Problem of the Human Element in Securing Efficient, Honest Administration

THE experience of the mayors of some of the larger cities regarding opposition from citizens and circumstances in carrying out their municipal and civic programs was given in the October issue of *THE AMERICAN CITY*. From some of the smaller cities have come replies of no less interest and value. The points of the ideal program to which attention was called are: enthusiastic and conscientious work; elimination of waste of time and materials; clean, honest administration of departments; provision for the future growth of the city. How these matters have been dealt with in a number of widely separated cities of less than 25,000 population is herewith presented.

## Bradford, Pa.

I am now closing the fourth year of a second four-year term as Mayor of this city, and, being a native here, knowing the people intimately for years, I feel that I know them and their conditions as a community very well.

As regards "enthusiastic, conscientious work," "elimination of waste of time and materials," "clean, honest administration of departments," and "provision for the future growth of the city," I believe that example is better than precept; and I have tried, as best in me lies, to set a forceful example, while I have repeatedly given the precepts which move me to the municipal official family and to the public in carefully worded messages, in the public prints and pamphlet form.

Directly answering your question, "Have you met with opposition from citizens, etc.?" I must say—*Yes!* And to the question, "What has experience taught you that other mayors may profit by?" I answer:

Nothing is so difficult as to convince a community of people in a small city what their real community needs are and to secure whole-hearted cooperation for the achievement of those ends. All worth-while things cost money and earnest effort, on the part both of those in office and of the citizenry generally. Confidence on the part of the people in those who are entrusted with office, as to their ability, integrity and good judgment, is not only essential but indispensable, and to secure that, real character is required.

This being granted, success and improvement are an assured fact, though they may arrive slowly—according to the ability and intelligence of the masses; but they will eventually "arrive." I have, in spite of reverses and opposition, great hope and faith in the average American city people—of our small cities in particular.

The greatest opposition, and the hardest to overcome, arises from the occasional "influential" citizen who is in a position to be "popular" and is swayed by his personal ambitions rather than by an impersonal interest for the "common good." The problem of good municipal government, I think, is merely one of common business sense, backed up by reason, which, when put to effectual service, brings about a common view-point for the common good, both present and future; and, I believe, the only one thing which can (or does) thwart the accomplishment of the great objective is selfishness on the part of the individual. I am convinced that the city official who can secure the confidence of his fellow citizens and then win them away from their sordid self-interests and enthuse them with a spirit of unselfish devotion to the good of all, by his own precept and example of that spirit, can accomplish any worth-while project upon which he may center his efforts; for he then will have the necessary cooperation and means with which to do the thing.

No small city should allow a partisan, or a politician, in the mayor's chair nor in its council body; if they must be elected by partisan methods, then the day they take office that partisanship should end and they should become, and be, "the servants of all," laboring earnestly for the greatest good to the greatest number, regardless of classes or parties, with the motto, "Equal rights to all, special privileges to none!"

Thus, and thus only, may the perfect American city be conducted wherein may dwell a healthy, happy, prosperous and contented people, each seeking the good and welfare of all, unselfishly, without personal ambitions, save for a pride, in each heart, that "my home city is the best!"

SPENCER M. DeGOLIER,  
Mayor.

## Benton Harbor, Mich.

Now serving my third term as mayor of Benton Harbor I am convinced that it is no more difficult to please the stockholders of a municipal corporation (the voters) than the stockholders of an industrial corporation. Private corporations would not tolerate a chief executive who had friends to serve or "pulls" to guide in the administration of their interests. Voters too often elect men to office who have been unsuccessful in their own affairs and elevate men to power who would be unthinkable as the heads of some private corporation.

About two years ago Benton Harbor elected a commission of five to take over the city affairs and succeed an aldermanic form of government. At that time the city had a heavy floating debt. City employees had for several

months received their pay in script. Coupons on city bonds could not be paid and the voters were unwilling to trust more funds to the old government. The first act of the new government was to ask a bond issue of \$500,000, half of which was to pay off the floating debt and the other half to provide an adequate supply of water. The voters responded with a tremendous majority. The city streets had been for several years worn out. In the space of two years all this has been changed. We believe that no city of our size now has more good streets, and no city a finer or more abundant water supply.

It was a hard blow to those who believed that a city should be conducted along the lines of party politics and to those who had for many years been kept in local power. As a result, at the first election after the commission came into being, a strenuous effort was made to defeat the commissioner who was elected for a single year. The "old guard" made such a poor showing after a very hard campaign that at the second election no opposition was offered and the two commissioners elected for two years were returned by unanimous consent.

The present government consists of five commissioners, a manufacturer, the head of a Benton Harbor-Chicago steamship line, a druggist, a nurseryman and a jeweler. The commission functions through a city manager, a city clerk, a director of law, a director of finance, all appointed by the commission. The city manager is responsible to the commission for the police, fire, street and engineering departments, and appoints the head of these departments. Under the old style of government every city employee had several bosses and obeyed no one.

J. N. KLOCK,  
Mayor.

### Girard, Ill.

The greatest obstacle in our city is lack of cooperation from the men of means. They fight every form of improvement that we have contemplated—water, sewer and pavement, but we have succeeded in partially winning them over to the paving project which we start in the next few weeks.

The second is, a lot of tired farmers have come to our city to retire and don't want any noise in the city limits, want all places of amusement closed, such as baseball, tennis and picture shows, but this has been overcome to a certain extent by meeting with the preachers and explaining to them that times have changed and they should be big enough in their work to draw the crowds.

I am on my third term, and the best results that we have obtained in cooperation was by personal interviews with the kickers, and I think we will succeed in installing a complete water and sewer system in the near future. This will have been accomplished by personal work with the parents of grown sons and daughters, explaining to them the possibility of industries coming to our town, and that their children won't have to go to the cities for employment as they do now, if we make it possible for factories to come to Girard.

We have in our work met with most of the people interested during the past two years, explaining the proposition to them. We will vote on water and sewer systems this fall, and I believe with the campaign we have put on we will win with a big majority.

DR. J. H. RIFFEY,  
Mayor.

### Rahway, N. J.

It seems to me that all the problems you have suggested are common to every municipal administration. There are selfish interests which will try to undermine every honest effort for improvement. My best success in overcoming this kind of opposition is probably traceable to the fact that very soon after taking office I organized several Citizens' Committees for various purposes, and wherever it has been possible to secure their recommendations in advance of any City Hall action, it has been done, thus to a degree disarming any opposition that might have otherwise arisen. I have recently announced two additional Citizens' Committees, one to consider and recommend a plan for building and financing permanent street improvements, and the other to consider the advisability of appointing a Director of Public Welfare to coordinate under one head all the work which can properly be characterized as welfare work.

JAMES B. FURBER,  
Mayor.

### Leesville, La.

The greatest difficulty, I suppose, is to finance the town with its present rate of taxation and at the same time keep the debts paid. We are levying our limit in taxes. Our salaries for employees are way out of proportion. We are a town of about 3,500. Our marshal receives \$125 per month, and 5 per cent on all collections made, which runs his salary around \$2,500 per year. Our night marshal receives a flat \$125 per month. They each get \$2 as cost on each fine paid in the City Court. We employ two street maintenance men at \$5 and \$3.50 per day for time worked, and two firemen at \$100 per month. Since our town is small, our aldermen are almost drafted into service, as they receive only \$2 per meeting.

I have on foot at present the proposition of voting bonds in the amount of about \$225,000 for the erection of municipally-owned light, power, water, sewerage and ice plants. Several of our largest taxpayers favor the proposition, and a great majority of the smaller ones, but there are a good many large taxpayers who, for the lack of sufficient knowledge, will not be favorable to the proposition until they can be convinced of a saving thereby. I have written a letter of inquiry to several towns about our size in this territory asking for information concerning their municipally-owned utilities, and the replies are highly favorable to the proposition. These I am publishing each week in our local newspaper, to convince the doubtful ones.

I believe the best policy for an aspirant to a mayor's office to follow would be to outline his intentions fully and lay them before the voters prior to the election. Then if the majority favor him and his platform, he has only to



carry out his promise. I believe a public official should be first an honest, trustworthy man and endeavor at all times to do good for the majority, erasing all personal feeling and party lines.

O. E. MORRIS,  
Mayor.

#### Marks, Miss.

Having served one term as Mayor, and begun on the second term, I find that the best policy for a mayor and board of aldermen to pursue is for them to work harmoniously together and not listen too much to the entire citizenship of the town, as, having been in public office for some fifteen or twenty years, I find that it is impossible to please them all. Therefore, my advice to mayors would be that they be conservative, honest and fair in every way when it comes to a matter of law.

I feel that the mayor of the town and the board of aldermen should be owners of property, so that they can feel the sting of taxation themselves, thereby enabling each of them to realize the position the other property owners occupy.

H. H. MARKS,  
Mayor.

#### Litchfield, Minn.

The greatest difficulty I found in assuming office was to interest the public, and the business men in particular, in municipal affairs. I found them all absorbed in the question of bread and butter for the family. In seeking for a way to awaken the interest of the public in public affairs and to get the cooperation of the business men, we organized a Business Men's Association, with the avowed purpose of using the Association in an advisory capacity, particularly to the City Council. It was not alone a question of interesting business men and the public in the welfare of the city and its projects, but of educating the Council to seek and accept the advice and counsel of the advisory board.

I have found that councils are apt to consider themselves sufficient unto themselves and to rather resent any advice or interference from the outside, so the problem had to be met from two angles: first, to get the Council to seek the advice and cooperation of the public and the Business Men's Association; and, second, to interest the public and Business Men's Association in the work and plans of the Council. I found that my chief work in this connection was to act as a medium, a go-between, between the Council on the one hand and the Business Men's Association and the public on the other; advising the Council that we needed the cooperation of the business men, and on the other hand showing that it was the duty of the public and the business men to counsel with and advise the municipal body in carrying on its work.

The plan has worked very well indeed. The Council investigates a proposed proposition or improvement or expenditure, gathers the technical information and submits the proposition to the Business Men's Association, asking for their judgment and advice on it. It is then thrashed out in the Business Men's Association,

and the consensus of the meeting is conveyed back to the Council. Final action is then taken. This is on the theory that the public in the great majority of cases will render a right and just decision on any question, provided it is clearly informed and fully advised on the matter. We thus establish mutual confidence and responsibility on the part of the Council and the public.

Our Business Men's Association has approximately 100 members. In every instance since I became an incumbent of the office, the Association, by an almost unanimous vote, has sustained the proposed action of the Council. Experience shows us that in this way we have on every proposition which is right 75 or 100 boosters in the Business Men's Association. With this working body we have a fine representation with which to go before the people. The plan has worked admirably, and has, I think, solved our most difficult problem in the administration of public affairs in our city.

ERNEST W. CAMPBELL,  
Mayor.

#### Sheridan, Wyo.

The greatest difficulty in the administration of the affairs of this city has been the lack of finances. For five or six years before the present administration was inaugurated, the city had been about one year or more behind on all finances, and as a consequence all payments were made in certificates of indebtedness. These certificates were discounted at a minimum of 10 per cent per annum, and in some cases as high as 2 or 3 per cent a month. Supplies were paid for in the same manner. As a consequence, dealers were not anxious to sell supplies to the city and there was more or less dissatisfaction among the employees.

This was the first matter taken up after the inauguration of the present city officials. A bond issue was floated to cover all of the outstanding warrants that could be located, and the city started off on a cash basis. The result has been most gratifying. More work was done last year on the streets and parks than had been done for a number of years, and a considerable saving was effected in all departments.

The fact that the Mayor and Commissioners are always on the job and do not try to confine their working hours to from 9 A. M. until 3 or 4 o'clock in the afternoon, probably has much to do with the satisfactory progress that has been made.

C. W. SHELTON,  
Mayor.

#### Dumas, Ark.

The main trouble I have had was, and is, in getting members of the Council to visualize the future growth of the town, and accordingly prepare for it in such a way that money expended to-day will not prove insufficient tomorrow. In other words, I know that, judging by the past history of Dumas, and of Desha County, in southeastern Arkansas property values and population double every seven years, and that it is only good sense to anticipate futures.

On the other hand, a modern school is fast producing a class of young men with percep-

tion and imagination, and future executives in this territory will have cooperation now lacking.

T. R. JACOBS,  
Mayor.

#### Butler, Mo.

The hardest thing we had to work out was our municipal water and light plant. When I went on the Council two years ago, we had no street lights and the Water and Light Department had over \$17,000 borrowed from the banks and no visible way to pay it.

We began to improve our plant by working over all street lines, and to-day have them in fine shape. Inside of twelve months we not only paid off the debt but also put on the street lights. Last year we bought a 300-horse-power, \$21,000 Fairbanks oil engine, and built a \$4,000 extension to our power-plant building. We paid for all of this out of the profits on our water and light service.

Our maximum light rates were 15 cents and our water rates 75 cents up to the first of last February, when we began taking off 20 per cent for cash, which reduces our net light rate to 12 cents and our net water rate to 60 cents. Also, beginning February 1, we started to build up a replacement sinking fund by setting aside \$250 per month out of profits on water and light.

To-day we have \$1,750 in this sinking fund and about \$7,500 in the regular water and light operating fund, and no debts. Our population is 2,800, with about 600 light customers. We have recently let a contract for an extension to our water-mains at a cost of \$4,623 and are paying for this out of the profits on water and light.

Another thing: we give the city free street

lights and water protection which would cost about \$8,000 if we paid some corporation for it. None of these have been paid by taxation, but out of the profits on our water and light (principally light). Another thing: we put in about 15 blocks of Tarvia paving, the city paying for grading and intersections; also ½-mile of macadam streets the past year, and now are starting proceedings to put in 16 blocks of cement paving.

We have met with very little opposition from our citizens in anything we have put over, as we have been giving them a good, clean business administration. We have eight members on our Council, and they are all good ones and we work together. That is why we can put things over. We have our Council divided into eleven different committees, and each committee is supposed to keep up the work of his department—and they do it. I never had a more pleasant body of men to work with, as all of us are working to one end—the good of Butler. If any trouble comes up, all I have to do is to refer it to the committee that has charge of that work, and it is looked after promptly.

We have one of the best fire departments in the country, and an I. H. C. fire truck with pump attachment, and when our boys don't put out a fire, it can't be done.

We are putting all these things over with a 40-cent levy on a \$3,000,000 valuation, the water and light being kept separate from the general expenses of the city, and none of our tax money being used for water and light except a 20-cent levy we make to take care of the bonds that were made to buy our water-works plant.

O. A. HEINLEIN,  
Mayor.

## Rents of Workingmen's Homes in Many Cities Higher Than Ever

**A**NATION-WIDE survey concluded in October by the National Industrial Conference Board, of New York, shows that rents for wage-earners' homes during the summer of 1923 have averaged at about 75 per cent over the pre-war level.

Reports were received from real estate brokers and others closely in touch with the housing situation in 161 cities of all sizes in all sections of the country, relating to rents of houses or unheated apartments of four or five rooms and bath. The Board's figures show that during the period of the war, rents, the country over, rose slowly, as compared with the cost of other necessities, but were still going up after July, 1920, when the cost of living as a whole began to fall. Indeed, the peak of rents, prior to July, 1923, was not reached until March, 1921. After that, average rents dropped slightly, and showed a tendency downward for a year. In November, 1922, the advance in rents began again, and the upward trend since then has been noticeable.

This is not true, of course, in all cities or in all parts of the country. In some of the

cities where rents were once highest they are now relatively low, measured by percentage of change; in others, however, there has been a steady climb upward. Taking the last four-month period for which the Conference Board has figures, that ending in July, 1923, it is found that in 60 out of 161 cities from which reports were received, there had been an average increase in rents, and in 16 decreases. In the remaining 85, rents remained unchanged. Thirty-two cities of the 161 reporting averaged rent increases of more than 100 per cent since 1914.

Few of the real estate men reporting to the National Industrial Conference Board expected a decline in the near future, unless industrial activity should again fall off in particular localities where, for the time being, increased activity had brought increase in population, with a consequent demand for increased housing. Scarcity of accommodations, the high cost of such buildings as are being erected, and increased cost of up-keep and taxes all serve to raise and keep up the rents of average houses in average communities.

# Oxyacetylene Welding in Artesian Well Work

## Welded Joints Replace Screw Joints on Two Jobs

USE has recently been made of oxyacetylene welding in making tighter and cheaper pipe joints in artesian wells where screwed joints have been used exclusively heretofore. Oil well casing has been advantageously oxyacetylene welded for years and, although artesian well casing is usually larger in diameter, the problem is not very different.

Recently an artesian well that was being sunk in New Jersey and required nine 20-foot lengths of steel pipe, 18 inches in diameter, with walls  $\frac{5}{16}$ -inch thick, was welded. In accordance with plans laid out in advance, four lugs  $1\frac{1}{2} \times 8 \times \frac{5}{8}$ -inch thick were welded on the outside of one end of each section of pipe, with half the length of the lug extending beyond the end of the pipe. The standard type of erecting gear used for the installation of casing with screwed joints was used to install the welded casing. This gear consisted of a derrick equipped to handle long lengths of pipe and to carry the weight of the entire casing.



WELDED LUGS ON LOWER END OF ARTESIAN WELL CASING

Immediately after boring operations had been completed, the installation of the welded casing began. The first section was lowered into the well and held in position at a convenient height for welding, by a clamp which was supported on blocks of wood. The second section of pipe was lifted by its upper end just above the ground and to an upright position with one end on top of the first section. Then the lugs which had been welded to the latter were welded to the second section, after which a circumferential weld was made to complete the joint between the two sections.

To properly allow for contraction, sections of casing were prepared for welding by separating them about  $\frac{1}{16}$ -inch with small steel wedges. These spacers were later melted



WELDING TWO SECTIONS OF AN ARTESIAN WELL CASING TOGETHER

into the joint as the circumferential welding progressed. When a joint was completed, another clamp was attached to the top of the upper section, and the weight was lifted off the lower clamp, which was removed, and the completed sections were lowered into the bore until the second clamp rested on the blocking. Then the work proceeded in the same sequence until completed.

It is essential that well casings be sunk without unnecessary delay once the bore has been completed. Otherwise there is a possibility of the hole's filling up and preventing the casing from being sunk to the proper depth. Provision is usually made to complete the installation of the casing within 24 hours after the boring has been completed. To accomplish this and at the same time help in further controlling the effect of contraction and expansion, two operators were employed to make the circumferential joints, each welding in the same direction on different sides of the casing.

As the welded lugs had sufficient strength to carry the entire weight of the casing, and as this was reduced by the water in the well and casing, which exerted an ap-

preciable upward force, the circumferential welds were not required to carry any weight. It was only necessary that they make the casing tight. These factors, having been determined by the engineers in advance, precluded the necessity of beveling the edges of the casing. The circumferential welds were made perfectly tight by penetrating the wall of the casing to only one-quarter of its thickness.

The welded casing for the New Jersey well proved so satisfactory that the same contractors soon afterward adopted the process for fabricating a casing for a second well in Pennsylvania. The latter casing was 120 feet long in six 20-foot lengths, 24 inches in diameter and 5/16-inch thick.

It developed that the lugs on the first casing were unnecessarily heavy, so lighter ones, measuring  $1\frac{1}{2} \times 6 \times \frac{3}{8}$ -inch thick, were used on the second casing and proved just as satisfactory. Except for the lugs, the procedure and methods of fabricating the second casing were the same as employed on the first, and both installations received the unconditional approval of all concerned.

ACKNOWLEDGMENT.—From *Oxy-Acetylene Tips*.

## Lighting the Streets Under Present-Day Conditions

### Increasing High-Speed Traffic Requires High-Intensity Lighting

TEN or a dozen years ago illuminating engineers were seriously and emphatically debating whether the street-lighting intensity on residence streets should be equal to that of half-moon or quarter-moon, or at least about those relative values. The greater use of electricity for illumination was being urged. The small unit was just beginning to make inroads into what had been admittedly the arc lamp's field. While there was some inkling of the possibility of developing a scientific illumination of the average street at relatively high intensities, and while there had been several examples of "white ways"—largely for advertising purposes, however—rash indeed would the man have been who dared to predict street-lighting practices of the kinds which are now obsolescent.

Street lighting, or street illumination, has assumed a different character recently. In early days the principal object was to provide enough light to enable pedestrians to

walk without colliding with obstructions or with other persons, and to find their homes, and to permit horse-drawn vehicles safely to navigate the more or less quiet thoroughfares and side streets. To-day the problem of handling with safety the ever-increasing auto traffic, the value of high illumination as a police safety precaution, the importance of well-lighted streets in forming public opinion regarding the desirability of certain districts, together with other modern factors, all serve to focus the attention of others besides illuminating engineers and central-station men on the problem of adequate street illumination. The result has been an awakening of interest which has brought about new ideas of proper illumination intensities, which has developed new methods of installation and of design and spacing of units, and which has made city authorities study street-lighting budgets on a basis other than that of a necessary evil.

—*Electrical World*.



COMMUNITY HOUSE UNDER CONSTRUCTION AT LONGVIEW

# The Planning of a New Industrial City

By S. Herbert Hare

Fellow, American Society of Landscape Architects

**F**IFTY miles down the Columbia River from Portland, Ore., is being rapidly built a new city, Longview, covering approximately 14,000 acres. Here will be concentrated the mills that will serve the vast lumber holdings of the Long-Bell Lumber Company in that district. The new city promises, therefore, to become an important center of the lumber industry of the Pacific Northwest.

Early in 1922, the officials of the Long-Bell company, realizing the value of careful planning, visited the town site. They were accompanied by J. C. Nichols, whose operations in the Country Club District of Kansas City made his advice most valuable. These men decided to build a city.

Following that visit, the late George E. Kessler, landscape architect and city planning consultant, was retained as advisor. S. Herbert Hare, of the firm of Hare & Hare, of Kansas City, Mo., landscape architects and city planners, had the privilege of preparing the plans for the development of the town site, and B. L. Lambuth, of Seattle, a specialist in industrial properties, was asked to handle the real estate problems in connection with the sale of the property. Before plans were started, industrial cities in various parts of the country were visited and accurate information obtained.

The term "city planning" has come into common use during the past decade, but very few cities have been carefully planned

from the beginning. Perhaps never before in this country has such careful consideration been given to the development of a new industrial community as in the case of Longview. Present and future needs have been studied, broad highways and boulevards have been provided along the principal lines of traffic, recreational facilities have been generously planned, and definite recommendations made for the grouping of various public and municipal buildings. A complete zone plan has been prepared, and all property is sold in conformity with the zoning regulations. By means of protective covenants in the deeds and plats, the buyers of property will be assured that the property they purchase for a certain use will be surrounded by properties of similar use.

## To Avoid Congestion of Traffic

Convenient communication to various parts of a city is of vital importance to its growth and prosperity. In Longview, broad thoroughfares radiate in various directions from the business center. Care has been taken so to place these diagonal lines in their relation to other streets that alternative routes are provided near the center, thus avoiding congestion of traffic at that point. The arrangement of main thoroughfares is such as to fix the permanent center, thereby preventing the shifting of real estate values, so characteristic of most cities.

While the blocks in the business area are short, those in the residence sections will be long, and in the hilly sections the unusually fine scenery is preserved by a careful adjustment of the streets to the topography. Lots are generally 50 by 120 feet, and alleys have been provided in most cases, both in the business and in the residential areas. One reason for this provision lies in the fact that the use of slab wood from the mills for fuel makes it necessary to provide a place where this wood may be dried in the open before storing. In the hill districts, where the lots are larger and each lot will have a private drive, these alleys will be omitted. Pole lines are confined to alleys wherever possible, or in easements along the rear lines in sections where there are no alleys.

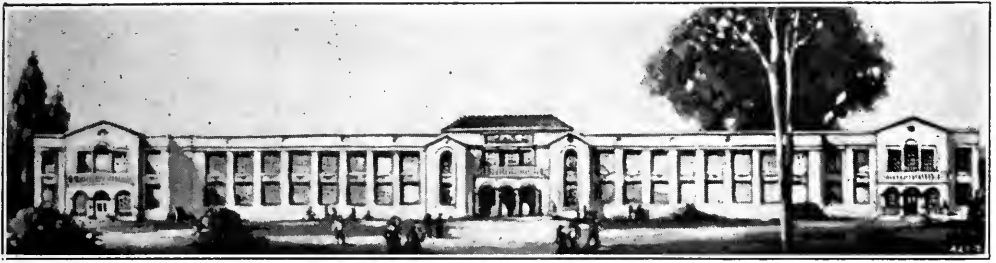
### Parks and Schools

Aside from a 6-acre park near the center of the town, which is nearly completed, an area of about 100 acres in the form of

a crescent-shaped parkway, 500 to 800 feet wide and 1½ miles long, surrounds the so-called inner city. This is bounded by two boulevards and will be developed so as to provide for the recreational needs of the community. It will have a continuous waterway along its entire length. To the west, at the base of Mt. Solo, a golf course will be developed immediately, and it is expected that another course soon will be added in the hills to the northwest. In addition, portions of the hillsides, together with smaller parks for neighborhood use, and a part of the frontage along the Cowlitz River, are proposed as part of the complete park development for Longview. All the outstanding natural beauties of the site will be preserved in park land.

Ample school grounds, in themselves local parks, have been planned for. Around the grade schools five acres or more have been reserved, and about thirty acres for use of the junior and senior high schools and a general athletic field.





LONGVIEW'S FIRST SCHOOL BUILDING

Half of this building has been completed for the fall term of 1923

### Accomplishments of a Year

Only those who have visited the new city can appreciate the transformation that has taken place in the last year. Some 50 miles of streets have been graded, and several miles of concrete paving, sidewalks and curbs have been completed. This includes, of course, many miles of water-mains and sewers. A modern six-story hotel, a store and office building, two bank buildings, a large garage, and fine, modern dormitory buildings have been completed, besides more than 250 houses. Many other business buildings and residences are under way, as well as the first buildings of the mills, the construction of which is progressing very rapidly.

As the mills of the Long-Bell company will occupy only a portion of the Columbia River water-front of approximately seven

miles and, as there will be other desirable industrial sites on the Cowlitz River front and on inland property, all amply served by railroads, it is believed that the population may reach 50,000 within a decade. The plans now being prepared contemplate such a population.

It is not the intention of the company to retain control of the city. Longview is to become a general industrial community and, when incorporated, the control will pass into the hands of the citizens. The officials of the Long-Bell company, however, will have the satisfaction of having their plant located in an orderly, convenient and beautiful city where every provision is made for the best living conditions of the workers, and they will have given this city a fairer start toward success than most other cities have had.

## Common Sense in Subdivision Planning

THAT the man who creates a real estate subdivision marks his city permanently for good or ill, is emphasized in a treatise just issued to its members by the Home-Builders' and Subdividers' Division of the National Association of Real Estate Boards. Among the high points in modern suburban development brought out in the volume are:

Subdividers begin the very foundation of the city in street planning and lot and block planning. Mistakes here are almost impossible to correct.

Blind conformance to a theory requiring all streets and sidewalks to be of the same widths is economic waste. Since the advent of the automobile it is foolish to continue to make blocks 500 to 600 feet long wherever blocks 900 to 1,000 feet long will serve. American cities have ordinarily given 25 per cent of their

area to streets. Through use of longer blocks, the percentage can be reduced on minor residential streets to 20 per cent or 18 per cent, thus reducing cost of street improvement to home buyer.

Thoughtless letting down of standards in developing lands just outside city limits is one of the greatest menaces of present-day city development. In every growing city such lands in a few years will present a problem in reconstruction for highly specialized city uses.

Development of a subdivision suited to the needs of a man of small means is as important to the public welfare as the development of the finer types of residence districts.

Zoning has for its greatest object not merely the keeping of injurious uses out of a residential district, but the avoidance of the economic waste of tearing down and rebuilding. It is unwise to use for residential purposes land that fairly soon, if confidence in the growth of the city is warranted, will be needed for industrial purposes.





THE CITY HALL OF BAGUIO, AS SEEN FROM THE REAR

# The City Manager Plan at Work in Baguio, Philippine Islands

By Pedro C. Morales

City Secretary

IT may be of interest to the readers of THE AMERICAN CITY to learn that far out in the Pacific Ocean in a tiny spot secluded amidst the pine-clad mountains of northern Luzon there is a thriving little city which enjoys the distinction of being the health Mecca of the Archipelago. Its steady progress is generally attributed to its form of government, which is believed to be unique in the entire Orient.

Though not exactly patterned after the city manager plan which is used in many cities in the United States, the government of this city is of that type to the extent that the chief executive is a mayor who is also the city engineer. The city charter provides that the "governor-general shall appoint, with the consent of the senate, the mayor, the vice-mayor, the city engineer, etc. He may appoint to any of the above-named offices persons who already hold official positions." It will be seen that the positions of mayor and city engineer are separate. However, since the year 1909, when Baguio was first organized into a chartered city, it has always been the policy of all governor-generals to appoint one man to fill these two positions, and no mayor

has ever been appointed who was not a civil engineer.

This arrangement is decidedly an advantage to the city, for it is not necessary to hire a city engineer and the salary is therefore a saving which can be expended for needed improvements. Besides, the mayor, who is also the presiding officer of the City Council, being a technical man, can give such technical advice as may be important in legislation, and as executive head, too, he can adjust legislation and its execution so as to suit local conditions to the peculiar circumstances of the locality. This is perhaps the most salient feature of the arrangement, for it avoids the unnecessary red tape often occasioned by friction between the city engineer and the mayor, or the city engineer and the municipal board, in cities where the mayor is not the city engineer. The system, therefore, works for harmony and coordination and renders more expeditious the accomplishment of city projects.

## Accomplishments

During the year 1921 several permanent public improvements were accomplished. It was the banner year of building in Baguio.

Among the improvements realized, the following are the outstanding ones:

1. Completion of a \$53,750 hydroelectric plant
2. Installation of the street lighting system, 90 per cent complete
3. Erection of concrete poles for telephone and light wires
4. Installation of a telephone cable
5. Extension of the gravity water-supply system
6. Completion of the Quezon Hill Road and asphaltting of the principal streets
7. Construction of a \$35,000 central school building
8. Beautification of parks and gardens

### Utilities

The city operates the following utilities: electric light, water-supply, telephone, and pail and garbage systems; ice, and concrete pipe factories; rock quarry, and land transportation.

Previous to the year 1922, the pail and garbage system was a losing operation. It was then done by the administration. In 1922 it was handled by a private contractor under the supervision, of course, of the City Engineer, and at the end of the year the city made a profit of \$876.28 from this operation. As soon as all the houses are connected with the sewer, pails will be retired from the service.

In 1919 the city lost about \$12,500 in the operation of the water-supply system. In 1920 the loss was reduced to \$5,393.40, and in 1921 the city was able to realize from the system the amount of \$262.88. This amount was further increased to \$2,054.12 during

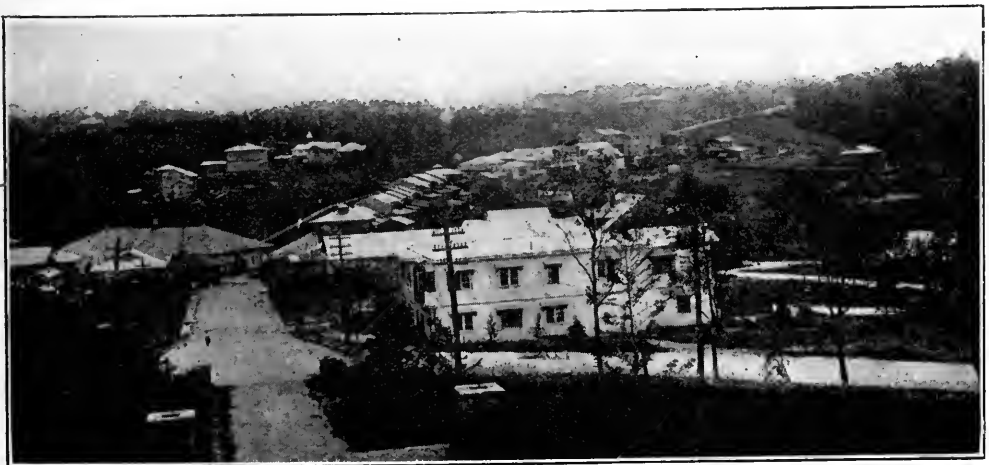
the year 1922. The expenses of operation for the last fiscal year amounted to \$7,948.23, while the receipts reached \$10,032.35. The reduction in expenditures was made possible through the saving of pumping expenses by the installation of the gravity system. This year the estimated receipts will double those of last year.

Perhaps the most important utility owned and operated by the city is the hydroelectric plant. The plant cost in the aggregate \$53,750, but four years hence the receipts will more than offset the cost. It is now the greatest source of revenue to the city. During the year 1921, about \$15,883.31 was expended for its operation, while the receipts from it reached \$30,903.07. The receipts from this operation during 1922 decreased somewhat, being only \$30,057.18, or slightly less than in 1921. On the other hand, the expense of operation was reduced to only \$13,404.87, so that the resulting percentage of profit is still greater than that of the previous year. The plant began to operate on July 16, 1921. It is a 210-h.p. plant, and furnishes electric current to a population of about 7,000.

These items go to show that the city of Baguio operates its utilities on a sound business basis. The utilities are in charge of the City Engineer, who is represented by the Superintendent of City Utilities.

### Police

The Police Department made 397 arrests during the year 1921, as compared with 455 in 1920. The number of arrests has been



THE BUSINESS SECTION OF BAGUIO, AS SEEN FROM THE FRONT OF THE CITY HALL

decreasing during the last three years. The reason for this is explained by the Chief of Police as follows: "Our department believes that instructions to the people, telling them about the law, and advising them to avoid violating the law as far as possible, would minimize crimes. This policy has worked all right, and this accounts for the general peace and order prevailing here."

### Justice

The city of Baguio takes exception to the criticism against the courts of justice in the Philippine Islands, contained in the Wood-Forbes Mission report after a tour of inspection throughout the Archipelago, in so far as justices of the peace courts are concerned. The Justice of the Peace Court has a clear docket and is not clogged with pending cases. Out of 172 criminal cases, only one was not disposed of at the end of the year, and this was due to the fact that the accused could not be apprehended at that time. During the same period 49 civil cases were heard and all but one were solved. The lone case undetermined was filed on the last office day of the year. The Court is working on the theory that "justice delayed is justice denied."

### General Statement of Conditions

In spite of the economic crisis which hit this part of the world after the war, conditions are quite normal. The people, in general, are peaceful and prosperous. The unemployment problem and labor unrest have not contaminated the city. Baguio is boasted as the cleanest and neatest and most sanitary city in the Far East. The Governor-General himself recognizes this and he always makes Baguio his residence whenever he feels the need of a sound rest after his exhausting labors at the Malacañan Palace.

The water-supply was declared potable after a thorough examination, and the bacteriological examination of its sewage, made recently, revealed the fact that 200 yards below the Imhoff tank the sewage purifies itself by 99.9 per cent. The city has a big incinerator for garbage. The City Health Officer has carried out an effective and successful fly and mosquito campaign, while his sanitary inspectors have made all premises neat and safe and

odorless playgrounds. The Baguio Hospital is almost vacant. The house-to-house inspection by the City Nurse has greatly reduced infant mortality.

The daily tour of the Overseer through the city and its suburbs has kept our road system in such fine condition that it is a source of pride and satisfaction to the residents, and Baguio visitors are always impressed with the efficient way in which the roads are maintained. The well-built and well-equipped police department has practically cleared the city of vagrants, drunkards, beggars and burglars. The Fire Department has never been called upon to extinguish fires.

The finances of the city are in excellent shape. There has never been any deficit incurred, but there has always been a balance at the end of every fiscal year. Last year the city had a balance of \$85,187.06 after paying all its obligations.

### Policies

What has wrought all these accomplishments? This question may be answered by quoting the Mayor's general policies, as follows:

*"1. To live within our income. Wise expenditures of public revenue: keeping money idle is false economy; permanent improvements are good investments.*

*"2. Effective supervision over all departments: laxity of discipline and looseness of supervision are fertile sources of inefficiency and corruption.*

*"3. Cooperation in the government and among the people."*

There are other minor policies, of course, but they are dependent on the effective execution of the three policies quoted above. To put into practical application the foregoing policies is "some" task and requires a man with tact and executive ability to accomplish them. Fortunately, the city of Baguio got this kind of executive head in the person of Mayor and City Engineer Eusebius J. Halsema.

All Baguio and Baguio visitors are enthusiastic over the satisfactory condition of things here, which is attributed by them to the efficient system of its government and the faithful and satisfactory services of its officials.

# Filtration and Chlorine versus Typhoid Fever

The Story of the Reduction of Typhoid Fever in Evansville, Ind., Through Improving the Sanitary Quality of the Water-Supply

By Charles Streithof

General Superintendent, Department of Water-Works, Evansville, Ind.

THE first water-works plant for Evansville was installed in 1871 and was equipped with two pumping engines with a rated capacity of 3,000,000 gallons per 24 hours, and four 50-horse-power boilers for furnishing the necessary steam. These pumps drew water from the Ohio River, the water filtering through from the river into a well 17 feet in diameter and 52 feet deep. Through the bottom of the well were driven brass strainer pipes, and what water came through was clear, but the plant was not a success when the river was extremely low. More pumping equipment was added in 1881, 1886, 1889, 1892 and 1893. In 1895, the ground where the present plant stands was purchased and the plant was equipped with two 10,000,000-gallon triple-expansion condensing Holly engines at a cost of \$48,000 each. The boiler-house was equipped with three 225-horse-power Sterling boilers, which cost \$17,000.

In 1908, contracts were let for a complete water purification plant, which was put in operation in March, 1912. This plant was equipped by the Norwood Manufacturing Company. It has a filtering capacity of 12,000,000 gallons per 24 hours and cost complete, with the low-service pumps to handle the raw water, the sum of \$284,577.79.

The pumping-station is now equipped with two 12,500,000-gallon Holly vertical triple-expansion pumping units for high service, two 15,000,000-gallon De Laval steam turbines for high service, and two 15,000,000-gallon De Laval steam turbine single-stage pumps for low service in handling raw water to the filter plant. The boiler-room is equipped with three 260- and one 308-horse-power Sterling Class A special boilers with Roney stokers and the necessary feed-water heater and two feed pumps.

In 1918 it became necessary to build a booster station on Forest Hills because of the rapid growth of that part of the city. This station is equipped with two Cameron centrifugal motor-driven single-stage pumps of 350 gallons per minute, which work automatically.

The distribution system consists of 151 miles of cast iron pipe, in sizes ranging from 4 to 30 inches. There are 1,170 fire hydrants in the city, and 78 mercantile and manufacturing buildings are equipped with automatic sprinklers. There are 16,732 services in the city, of which 13,786 are metered.

When meters were first installed, in 1913, there was a very strong sentiment, especially among the medical fraternity, against this change, the claim being made that the people would not use sufficient water to keep up sanitary conditions. This has been completely disproved by the remarkable reduction in typhoid fever cases and other contagious diseases during the past few years.

## Chlorine Downs Typhoid Fever

It will be noted that in the last five years since the use of chlorine gas for sterilizing the entire municipal supply was begun, there have been remarkably few cases of typhoid, notwithstanding the great number of additional consumers of city water. The accompanying table shows the remarkable results which have been obtained in Evansville and which are typical of other cities in which filter plants and sterilization have been installed.

Plans are now being made to enlarge the filtration plant by adding six 1,000,000-gallon filters, including a coagulating basin and the necessary auxiliaries to the present filtration plant, which has a capacity of 12,000,000 gallons daily.

Another matter which has been valuable

STATISTICS OF THE EVANSVILLE, IND., WATER-WORKS

Year	Population	Population Served	Number of Taps in Use	Meters	Consumption Per Capita	Typhoid Cases	Deaths
1908.....	70,000	28,600	7,150	.....	103	149	22
1909.....	70,000	31,500	7,460	.....	105	175	25
1910.....	69,647	33,600	7,620	.....	125	186	20
1911.....	75,000	39,000	7,800	.....	124	109	15
<i>Filter Plant Put in Operation March 12, 1912, and First Hypo-Chloride of Lime Used</i>							
1912.....	77,485	43,000	7,987	.....	123	131	24
1913.....	80,000	50,000	8,176	51	122	262	29
1914.....	82,140	53,000	8,875	271	117	34	10
1915.....	83,050	55,000	10,680	2,181	98	86	18
1916.....	84,137	56,000	10,818	4,048	94	200	24
1917.....	84,467	60,000	12,461	5,402	85	112	18
<i>First Chlorine Gas Used August 4, 1918</i>							
1918.....	84,745	64,000	13,434	6,098	89	31	12
1919.....	84,987	67,000	13,987	6,867	91	12	4
1920.....	85,255	70,000	14,283	7,683	91	10	3
1921.....	87,340	80,000	15,199	8,582	86	8	1
1922.....	90,000	85,000	16,400	11,465	90	7	1
1923.....	90,000	.....	16,856	14,400	.....	None	None
Up to July 1....	.....	.....	.....	.....	.....	Up to 7-7-23	

Note: Five of seven cases in 1922 were visiting out of the city and returned sick.

in aiding the health of the city is the elimination of cisterns and open vaults. Within the last five or six years more than 5,000 of these have been abandoned, so that the city is practically free from them to-

day. Evansville is a manufacturing city located on the Ohio River and is built up principally of single-family homes numbering 18,527, and 1,428 multiple homes. The city covers an area of 10½ square miles.

The Life and Maintenance Costs of Asphalt Streets

Interesting Figures from the Records of the Highway Engineer, Washington, D.C.

RECENTLY an investigation of the records on file in the office of the Highway Engineer of the District of Columbia disclosed that sections of 57 streets, or 111,903 yards of asphalt paving, had been practically free from maintenance charge. The average life of the streets referred to was 13 years, but a

number of the streets had been in constant use for 25 years. Lake asphalt has been used on the streets of Washington more than 40 years since the Congress of the United States in 1875 provided for paving Pennsylvania Avenue from the Capitol to the Treasury Building and for other streets in the District of Columbia.

Granite Block Paving in Cambridge, Mass.

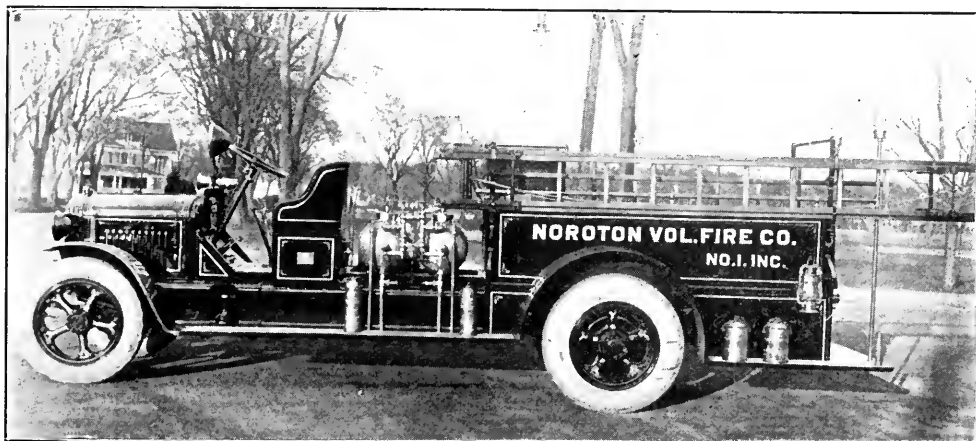
ACCORDING to Lewis M. Hastings, City Engineer, Cambridge, Mass., in the *Journal* of the Boston Society of Civil Engineers, Volume X, No. 5, the present practise of using a small, well-cut block upon a rigid concrete base with joints run full of cement grout on bituminous filler, makes a vast improvement in the desirabil-

ity of this kind of pavement. In 1922, the cost of laying a 4½-inch new Cape Ann or Rockport granite block on a 6-inch concrete base with solid joints was about \$10 per square yard. By using old blocks recut, the cost was reduced to \$6.00 and \$6.50 per square yard without lessening the value of the pavement.



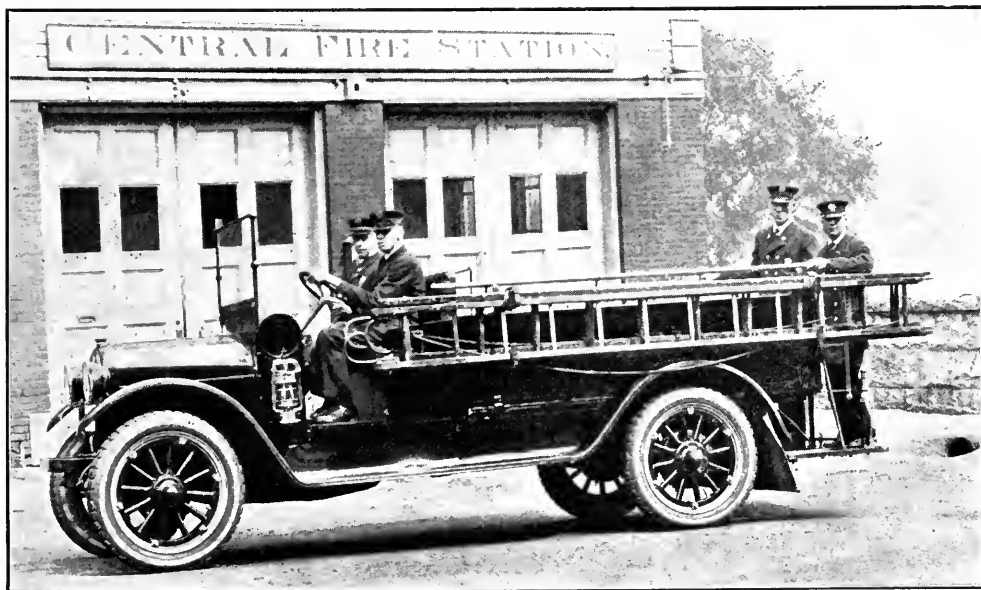
MUNICIPAL SWIMMING POOL IN GRANT PARK, ATLANTA, GA.

## Motor Fire Apparatus in Communities of Less Than 5,000 Population



NEW CHEMICAL AND LADDER TRUCK FOR THE NOROTON VOLUNTEER FIRE COMPANY NO. 1, NOROTON, CONN.

The equipment of this apparatus consists of two extinguishers, two acid containers, two soda containers, one 24-foot extension ladder, one 12-foot roof ladder, one pike pole, one crowbar, one axe, two lanterns, an electric siren, a locomotive bell, a spot light, and two 35-gallon copper tanks, furnished by the Buffalo Fire Appliance Corporation, Buffalo, N. Y. The truck is a 2-ton GMC chassis with pneumatic tires. We are indebted to Thomas J. Boyle, Fire Chief, Noroton, Conn., for this photograph



HOSE TRUCK BELONGING TO THE LITTLETON, N. H., FIRE DEPARTMENT

This truck, built by the Combination Ladder Company, Inc., Providence, R. I., is equipped with 700 feet of hose, eight hand extinguishers, one 20-foot extension ladder with folding hooks, one 12-foot roof ladder with folding hooks, one axe, one crowbar, one tin roof cutter, one plaster hook, one ceiling remover and two lanterns. We are indebted to J. O. Mozrall, Fire Chief, for this photograph

### Financing Storm Sewers

Municipal law in Ohio is more familiar with the term "storm sewer" than with "storm drain." For this reason the former term has been used to indicate a conduit for carrying off surface and storm water. Furthermore, the need of trunk-line storm sewers in Marion has a distinct and direct relation to the correction of the objectionable conditions causing complaint. This fact was established by a house-to-house canvass of connections and a detailed study of existing sewers. Consequently, trunk-line storm sewers in Marion are a necessary part of the remedial measures required to comply with orders of the State Department of Health. Therefore, they are in reality sanitary improvements which can be financed by a majority instead of the usual two-thirds vote.

However, this plan of rehabilitating a separate system of sewers in its entirety could not be used for all of the storm sewer work, since present and applicable Ohio statutes limit the bonded indebtedness for Marion to, roughly, one million dollars; and as this amount has already been provided, it appears, at the present time, that the usual practise of financing municipal improvements by a two-thirds vote to authorize a bond issue must be followed. It is with these facts in mind that the city of Marion has undertaken a \$1,500,000 sewerage project, of which over one-third is now under contract and two-thirds is financed.

### Proved Method of Sewage Treatment

Of the work under contract, the sewage treatment plant is perhaps of the most interest because it represents a modern, tried and proved method of sewage treatment in this country. It is possible that the city of Marion has not installed the most ideal type of sewage treatment works. However, there appears to be some wisdom in sacrificing "idealism" in order to obtain a sewage plant which has passed through the experimental and demonstration stages, has had its shortcomings emphasized, and has proved successful each day of the year for a number of years. Under these circumstances, the design, construction and operation of an Imhoff tank-trickling filter type of plant at the present time resolves itself into correlating local information with experience elsewhere and improving and per-

fecting certain essential details which in the past have been somewhat troublesome.

### Sewage Treatment Works

The sewage treatment works comprise bar gratings, grit chambers, two-story settling-tanks, pumping-station, dosing-tank, trickling-filters and secondary settling-tanks. Besides the screen-house and pumping-station there is a separate laboratory and office building. The works are designed for a population of 40,000, which should take care of conditions to about 1935. The average daily flow has been assumed at 4 M. G. D.

*Site.*—The sewage works are centrally located on an 80-acre tract of land, the property being a little over one mile west of the city limits. The site is distinctly rural, there being not more than six farm-houses within half a mile. It was necessary to condemn the property for the site, as the amount required to purchase was in question. The Court decided upon a figure of about \$280 an acre.

*Bar Gratings.*—The sewage enters the works through a three-way channel, where, by hand-controlled gates, the flow may be diverted to one or both grit chambers, or to the dry weather flow channel. Any excess over the capacity of these chambers is diverted to the main outfall. In each channel is a bar grating made of  $\frac{1}{2}$ - by  $2\frac{1}{2}$ -inch bars, set to give  $1\frac{1}{2}$ -inch clear openings. These bars are inclined at an angle convenient for hand raking, and at the top of each grating is a platform for draining the screenings. It is intended to dewater the screenings in a hand press and dispose of them by burial. The inlet channels and screens are enclosed in a brick building, which has a concrete floor and which is well lighted and ventilated so as to enable this portion of the works to be operated and maintained in a clean and sanitary manner, and without interference by weather.

*Grit Chambers.*—There are two grit chamber units, each of 5 million gallons daily capacity, but capable of being worked to 10 million gallons if necessary. At these rates the velocities are respectively 1.0 and 1.5 feet per second, the normal detention period being 50 seconds. In form the chambers are shallow at the inlet and outlet ends and deep in the center, just the reverse of



a Venturi meter, so that the velocity is gradually slowed down, and then as gradually increased again. In cleaning, the grit chamber is shut down by closing the inlet gate, when the supernatant water may be drawn off and the grit drained through an open-joint tile pipe, bedded in gravel, located at the lowest point. The grit is then shoveled into dump-cars on adjacent tracks paralleling the grit chambers, and disposed of on spoil areas.

*Venturi Meter.*—After flowing through the grit chambers, the sewage on its way to the two-story or Imhoff settling-tanks passes through a Venturi meter, which automatically registers the rate and total flow, thereby providing a permanent record of both.

*Settling Tanks.*—There are four of the two-story type settling-tanks, with through trough, as distinguished from hopper bottoms. Each tank is 30 by 60 feet in area, with a maximum depth of 30 feet below the flow line, thus giving a total capacity of 4 cubic feet per capita. The normal detention period is 120 minutes, and provision is made for distributing and reversing the flow. The sewage enters the tanks through cast iron pipe and valves, instead of open channels, to avoid deposits and unsightliness. Skimming chambers, screens and adjustable scum boards are provided. The gas vents have hinged wooden covers.

The sludge flows hydraulically to a centrally located pneumatic ejector, which forces it to the sludge beds. Two-inch irri-

gating pipes are conveniently located for stirring up the sludge either for mixing or to assist in its removal. There are connections also for flushing the sludge pipes. Drains are provided to empty the tanks.

*Sludge Beds.*—There are ten sludge beds, each having an effective area 17 by 74 feet, or a total of 12,580 square feet. The depth of sand is 12 inches, underlain by 2 inches of fine gravel, there being a 6-inch tile drain with open joints in the center of each bed. The sludge is removed by shoveling into standard dump-cars, hand-propelled, on 24-inch industrial track laid on the sand. The sludge beds are covered with glass roofs of standard greenhouse type, thus making the drying of the sludge independent of the weather. It is contemplated dosing the beds to a depth of 10 inches, and it is assumed that each bed could be dosed to this depth fifteen times a year.

*Pumping Equipment.*—The head sufficient to force the sewage through the entire plant by gravity is not available, therefore it was necessary to provide pumps which elevate the settled sewage to the dosing-tank. For this purpose there are installed one 5-million- and two 3-million-gallons-per-day motor-driven horizontal pumps having automatic starters and operating normally against a total head of about 20 feet. These are located in a special building, which also contains an air-lift well and pressure pump for supplying water for the grounds and buildings, and a compressor



THE SCREEN BUILDING AND GRIT CHAMBERS OF THE MARION, OHIO, SEWAGE TREATMENT PLANT PRACTICALLY COMPLETED

outfit to furnish air for the well and sludge ejector.

**Dosing-Tank.**—The dosing-tank consists of two compartments each having a capacity of 38,500 gallons, and is equipped with twin alternating 30-inch siphons so that the same dose is applied to the filters at each discharge of the siphon. Variations in flow increase the frequency of dosing, but the size of the dose is the same under all conditions, since when one tank is discharging the other is filling. The maximum rating of each siphon is 7,000 gallons per minute. The number of discharges is registered by an automatic counter. Each compartment is designed with a sloping side in order to give uniform distribution on the filter by the spray, from fixed nozzles, discharging under falling head. The maximum head over the top of the filter is 10 feet, the minimum 2 feet. The dosing-tank is veneered with brick and has a plank cover. The space under the sloping sides provides storage for tools and other movable equipment.

**Trickling-Filters.**—There are four filter-beds each of 0.35 acre in area, or a total of 1.4 acres. The population served is 28,600 per acre. The normal rate of operation is 2.86 million gallons per acre per day, the maximum rate being 7.15 million gallons. The depth of filtering media is 10 feet, and the material is 2-inch broken limestone. The main distributing conduit is a 2-foot 8-inch by 3-foot concrete channel from which 8-inch lateral distributors are taken off on 13-foot centers. These distributors are laid directly in the stone, sufficiently beneath the surface to be just covered. The nozzles are on 15-foot centers, and the rows are staggered in such a way as to form hexagons. For the underdrain system the concrete floor is channeled transversely, and a system of concrete blocks is supported on the ridges, and laid in such a manner as to leave open spaces between adjacent rows of blocks. The floor channels lead to an open main collecting channel which terminates in a 24-inch cast iron pipe leading to the secondary tanks. Provision is made for cutting out of service and flooding one-fourth of the entire area, or each bed, as occasion requires.

**Secondary Tanks.**—The main purpose of the secondary tanks is to remove from the trickling-filter effluent the accumulated de-

posits on the filter stone, which are periodically sloughed off and carried away with the effluent. These tanks are four in number, relatively long and shallow, with trough bottoms, the principal dimensions being 15 feet by 60 feet by 12.5 feet maximum depth. The normal detention period is 90 minutes. Between the tanks is a small covered gallery, in which is located a motor-driven centrifugal pump, to pump the sludge from these tanks either into the sludge compartments of the Imhoff tanks, or direct to the sludge drying-beds.

The effluent from the secondary tanks passes through an outfall conduit to the Little Scioto River. In this outfall conduit is a flap-gate to prevent the river from backing up into the works during high water.

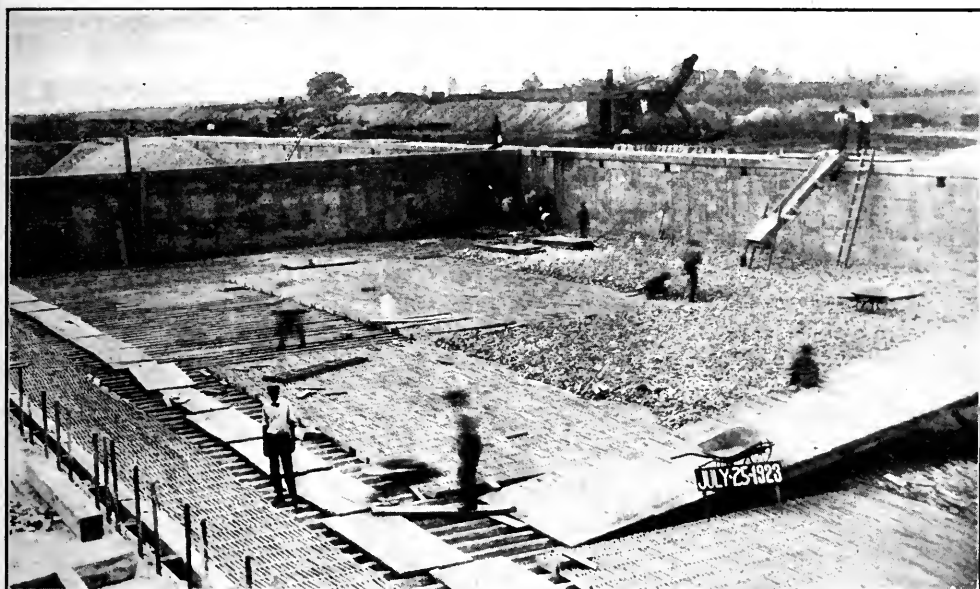
**Buildings and Grounds.**—The buildings are of red face brick with Bedford limestone lintels and sills, and overhung red tile roofs. It is the intention to seed or sod the grounds, and build substantial macadam roadways and walks, and probably later to plant the grounds with trees and shrubs, so as to give to the whole a pleasing appearance.

**Costs.**—During these times of relatively high prices, it is interesting to know the actual cost of a sewage treatment works. Furthermore, if these figures are in such form as to be readily understood and capable of being used for comparative purposes, their value is increased. With this in mind, the following information has been prepared, based upon the work already completed.

TABLE SHOWING THE PER CAPITA COST OF THE MARION SEWAGE TREATMENT WORKS

	Cost Per Capita	Per Cent of Total Cost
Connecting channels .....	\$0.65	5.8
Grit chambers .....	0.12	1.1
Imhoff tanks .....	1.90	16.9
Pumping installation .....	.58	5.1
Dosing-tank .....	.37	3.3
Sludge-beds .....	.76	6.7
Trickling-filter .....	4.57	40.6
Secondary tanks .....	.73	6.5
Buildings .....	.83	7.4
Parking .....	.57	5.1
Miscellaneous .....	.17	1.5
Entire plant .....	11.25	100.00

The contractor has established a camp at the site for the laborers, who receive from 40 to 50 cents per hour. Their efficiency has varied widely. Cement costs \$3 per barrel, net, sand \$1 per ton, and stone



**GENERAL VIEW OF THE NEW TRICKLING FILTERS AT MARION, OHIO, WHILE UNDER CONSTRUCTION ON JULY 25, 1923**

The concrete underdrains and slabs as well as the placing of the gravel may be seen in this illustration

for concrete \$2 per ton on the job. Stone for the filter beds costs \$1.05 per ton at the quarry, which is about two and one-half miles from the site.

### Special Features

In the operation of Imhoff tanks, some difficulties have been experienced which are closely related to the design, especially as regards the perfection of certain essential details. One objection often raised is a lack of sludge storage capacity, and another, the difficulty in starting sludge when inert material has become concentrated and packed in the apexes of hopper bottoms around the ends of the sludge outlet pipes. The Marion tank bottoms have no hoppers, but are trough-shaped. This type costs no more, if as much, when foundation conditions warrant its use. Trough bottoms prevent a concentration of inert material at two or three points, lessen the likelihood of plugging the sludge outlets, distribute the sludge more uniformly, and provide somewhat greater storage capacity.

One of the greatest drawbacks to the trickling-filter is the moth-fly nuisance. Recent practical experimentation has demonstrated, however, that this objectionable characteristic can be eliminated by flooding

the filters periodically. Accordingly, the filters at Marion have been so constructed that any one of the four units can be flooded and cut out of service at any time. To my knowledge, the Marion plant is the first large plant to have this feature incorporated in the original design.

In rehabilitating a separate system of sewers, it is important that, in Ohio, this plan can be financed upon the same basis as the combined plan, that is, by a majority vote, provided the storm sewer improvements actually assist in correcting the objectionable conditions which are responsible for state orders. As far as I know, the first application of this principle has been at Marion.

This work is being done under direction of E. A. Schultz, Director of Public Service, and Tom S. Cathers, City Engineer, with the writer acting as consulting engineer. A. A. Burger is acting as resident engineer and was also the writer's principal assistant in the preparation of the plans, being responsible for much of the detail work thereon. A. Bentley & Sons Company, Toledo, is the general contractor. Bids were received for the work on August 31, 1922, and it is hoped to pass sewage through the plant by the end of 1923.

# The International City Planning Conference at Gothenburg, Sweden

By Charles W. Eliot, 2nd

Sheldon Traveling Fellow, Harvard University

CITY planners and city plans from all parts of the world were brought together in Gothenburg, Sweden, for the conference of the International Garden City and Town Planning Federation in August. Twenty-two nations or states were represented, each bringing different experiences and problems to the conference table.

Among the delegates were many of wide reputation either as planners or as administrators. Thus, England was represented by Ebenezer Howard, who originated the garden city idea, by Raymond Unwin, and by officials of the Ministry of Health; Germany sent over Stubben, Langen, and Otto; while the United States was represented by John Nolen, Flavel Shurtleff, and delegates from Boston, Milwaukee, Dartmouth College and Harvard University. Representatives from the Irish Free State, from Australia and Japan, from France, Spain, and Italy, and a large contingent from the Scandinavian countries made the conference a truly international gathering.

In connection with the Jubilee Exposition being held in Gothenburg an exhibition of city planning and housing work had been arranged. While the collection of material was very large and varied in character, the emphasis was upon the regional planning work now going forward in most countries and especially upon the importance of garden suburbs and satellite towns.

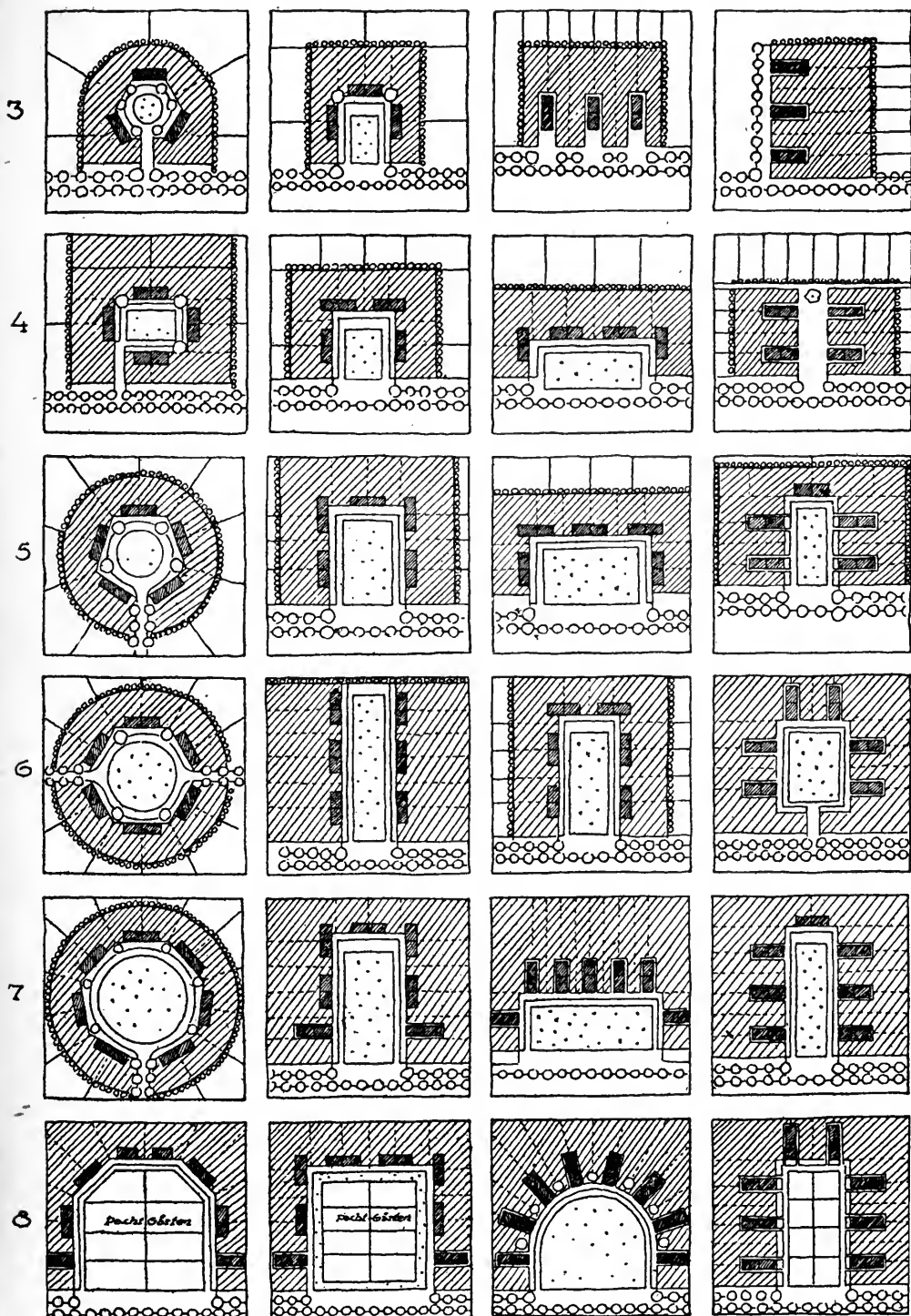
The meetings of the Federation, which was founded in 1913, were held in the City Hall of Gothenburg. It was not the exposition alone which caused the choice of Gothenburg as the meeting place, for in the city there was much to be seen of port and park development, of housing and garden suburbs, and of other new work in town planning. Under the guidance of Albert Lillienberg, the City Engineer and able Swedish city planner, the members of the Conference were shown the plans and accomplishments of Gothenburg and saw how a city which was planned three hun-

dred years ago has grown in a practical and beautiful way in accordance with preconceived comprehensive plans.

The program of the conference included reports on progress in city planning work in the countries represented and a series of papers on theory and practise in town development. English was the official language of the conference, but most of the addresses were translated into German, French, or Swedish, for the benefit of those who could not understand.

The reports from the different countries, at the first day's sessions, reflected the housing crisis in Europe caused by lack of building during the war. Almost all the speakers devoted a large proportion, if not all, of their allotted time to the housing difficulties in their own countries, the laws affecting housing, and the progress made by public and private means towards provision of an adequate supply. To the Americans this absorbing interest in housing seemed disproportionate to its proper place in the field of city planning; for to us, as well as to some of the other delegates, the housing problem appeared as only a part of a larger problem of zoning and circulation.

The papers at the second day's meeting were on different subjects, but again housing was emphasized. The morning session was devoted to housing finance and construction methods and to an illustrated talk by Mr. Lillienberg on the town planning history of Gothenburg. In the afternoon the delegates heard something of the city planning activities in Finland and particularly of the important part played by fires and the requirements of fire protection in the plans of cities there. The rest of the session dealt with the new problems and theories of regional planning in America, Germany and England. Mr. Nolen discussed the "Plan of New York and Environs"; Mr. Langen, with slides, spoke on the movement for decentralization of



Gustav Langen, Architect, Germany.

## PLANS FOR GROUPS OF FROM THREE TO EIGHT HOUSES WITH GARDENS AND POTATO FIELDS

This page and the plan on the page following are reproduced from the official catalogue of the International Cities and Town Planning Exhibition. (reviewed briefly on page 549 of this issue)

population in Germany which is being fostered by the cooperative societies; and, finally, Mr. Unwin gave an address on the evils of the great city and the possibilities of development by satellite communities.

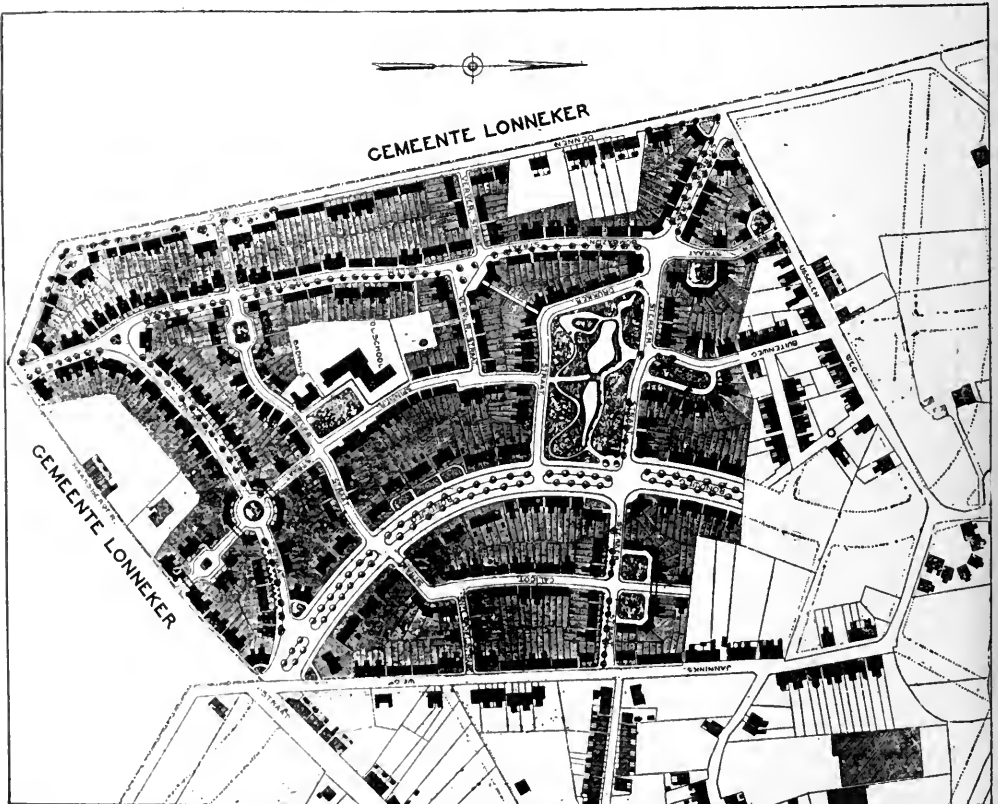
Perhaps the most valuable part of the conference was the opportunity to discuss the plans shown in the exhibition with men who were familiar with the local problems involved. With such aid it was possible to study methods of procedure and technical details.

To a Bostonian, the progress of other countries in regional and metropolitan planning was especially interesting. In the work about Manchester, England, where over one hundred authorities are cooperating, and in the accomplishments of the Regional Planning Association of the Ruhr in Germany, there was much that was inspiring. The great park reservations in the Ruhr under control of this Ruhr Association took on an added interest when it was learned that the idea of setting aside these

areas was directly traceable to the plans of the Boston Metropolitan Park System which were exhibited in Berlin in 1910.

After the formal sessions in Gothenburg, the conference moved on to Stockholm, and after that a group visited Copenhagen, Hamburg, and Bremen. In each city the delegates were escorted and entertained and came to know something of the individuality and city planning activities of these progressive cities.

The value of this conference, exhibition, and tour is found in the increased mutual respect and international cooperation which result. Each country brought to the conference a different point of view, for in each country there is a specialty and a different emphasis in city planning work. Thus, France is famous for strong architectural and formal planning, Germany for her organization and theory; England emphasizes the social aspects and the garden city; while America is engrossed in traffic and zoning problems.



**PATHMOS GARDEN SUBURB, MUNICIPALITY OF ENSCHEDE, HOLLAND**

Between 1914 and 1920 there were built in this suburb 820 houses for workingmen, 19 shops, a public school, a public bath and a park



# Chamber of Commerce Activities in Public Affairs

## *San Francisco Contributes Nearly \$600,000 to Japanese Relief*

SAN FRANCISCO, CALIF.—The quota set by the American Red Cross as San Francisco's proportion of the Pacific Coast quota for the national fund of \$5,000,000 for Japanese relief was \$83,000. Upon the call of the President of the Chamber of Commerce, a group of leading business men met to devise ways and means for meeting immediately San Francisco's quota. Before they adjourned they voluntarily determined to add \$417,000 to the original quota, setting their goal at \$500,000. The Manager of the Chamber of Commerce was named campaign manager. The \$83,000 originally asked of San Francisco by the Red Cross was raised within twenty-four hours, and the balance of the amount, which exceeded by \$100,000 the total quota of the Pacific Coast district, was raised within ten days. When the final report was made, the aggregate which had been sent from San Francisco was \$597,061.56.

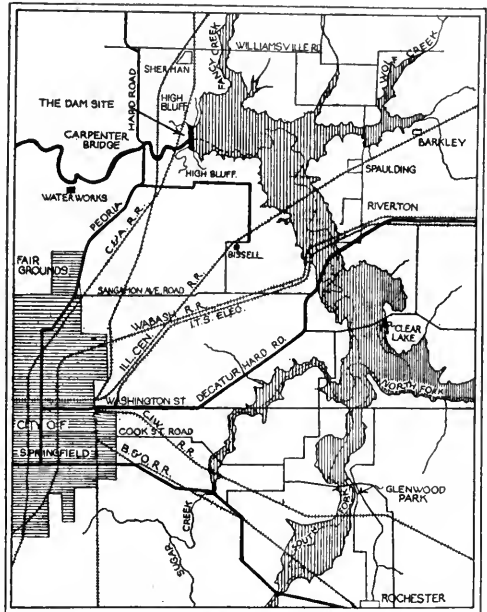
CHARLES A. SIMMONS,  
Manager, San Francisco Chamber of Commerce.

## *Making Central Illinois a Lake Region*

SPRINGFIELD, ILL.—An important next step in the general plan of making Central Illinois one of the great lake regions of the country is likely to be taken soon. The Springfield Chamber of Commerce and the City Zoning and Planning Commission are actively advocating the construction of a huge dam across the Sangamon River just north of the city for the purpose of increasing the city's water-supply by the formation of a lake at Springfield similar to the Decatur lake\*, but larger. The establishment of a large sanitary district with a great sewage disposal plant is also being placed before the people. The citizens seem favorably disposed toward both proposi-

tions, and ways and means of financing their construction are being worked out by the joint bodies named.

President Will Taylor and Manager C. E. Jenks of the Springfield Chamber of Commerce comprised a committee of two on the occasion of a Springfield-to-Decatur lake inspection trip recently, to inquire into the methods employed in building the Decatur lake, and have made a special report on the subject to the Springfield City Commission and to the Zoning and Planning Commission. The construction of the



MAP OF SPRINGFIELD, ILL., SHOWING PROPOSED "LAKE LINCOLN"

dam at Springfield will create a lake about sixteen miles long and from a half-mile to two miles wide. The suggestion has been made that the Springfield lake shall be called Lincoln Lake, to memorialize Lincoln's association with Springfield. This is particularly appropriate, as Lincoln piloted his flat boat from New Salem down the historic Sangamon River to the Mississippi River.

\* See article on "Decatur's New Impounding Reservoir" in THE AMERICAN CITY for August, 1922, pages 139-141.



A committee of five men is already working on preliminaries to determine the exact location of the dam after a thorough geological and contour survey. The committee is being actively supported by the state and national geological surveys and by the state sanitary engineers. A competent firm of engineers has been employed by the city to make a preliminary survey to determine the limits of the proposed sanitary district, locate sites for sewage disposal plants, etc. The lake already built at Decatur, together with the Springfield lake and lakes being planned at Litchfield and Danville, will help to give Central Illinois a series of lakes combining beauty with practical utility.

C. E. JENKS,  
Manager, Springfield Chamber of Commerce.

### ***A New Day in Baton Rouge***

BATON ROUGE, LA.—The first important project taken up by the Baton Rouge Chamber of Commerce after its recent reorganization by the American City Bureau was the promotion of a \$2,000,000 bond issue. This bond issue provides for the extension of port facilities, additional parks, street paving, a new central fire station and two substations, a complete new drainage system, a public library, a city hall, an abattoir, and the opening of several new streets in the city.

The item of the bond issue in which the Chamber of Commerce was most vitally interested was that providing for the extension of port facilities—an item which met with the keenest opposition. Baton Rouge, the seventh port in the United States, is at the head of the deep-water navigation on the Mississippi River and has a heavier water tonnage than either Boston, Norfolk, or San Francisco. In spite of this fact, the city at the present time has no docking facilities, even for small excursion steamers, aside from the docks owned and operated by a private company.

The Chamber of Commerce decided to begin a campaign to help carry the bond issue, and a Bond Issue Committee was appointed. From this committee several subcommittees were organized to take care of the various phases of the work involved. One of these committees made a tour of a number of other ports throughout the country for the purpose of gathering in-

formation on docking and terminal facilities. This information was then compiled and presented to the public. As it was necessary that the vote in favor of the bond issue, in order to carry, should represent the greater part of the assessed valuation in the city as well as the majority of individual votes, articles were secured from some of the larger taxpayers for publication in the local newspapers. Two forum meetings were held by the Chamber, to which the public was invited. These meetings were attended by large crowds of people and were the scenes of many lively discussions. On election day every voting precinct in each ward was thoroughly organized with workers from the Chamber of Commerce, and automobiles were provided for the use of the workers. The entire bond issue carried by a vote of six to one.

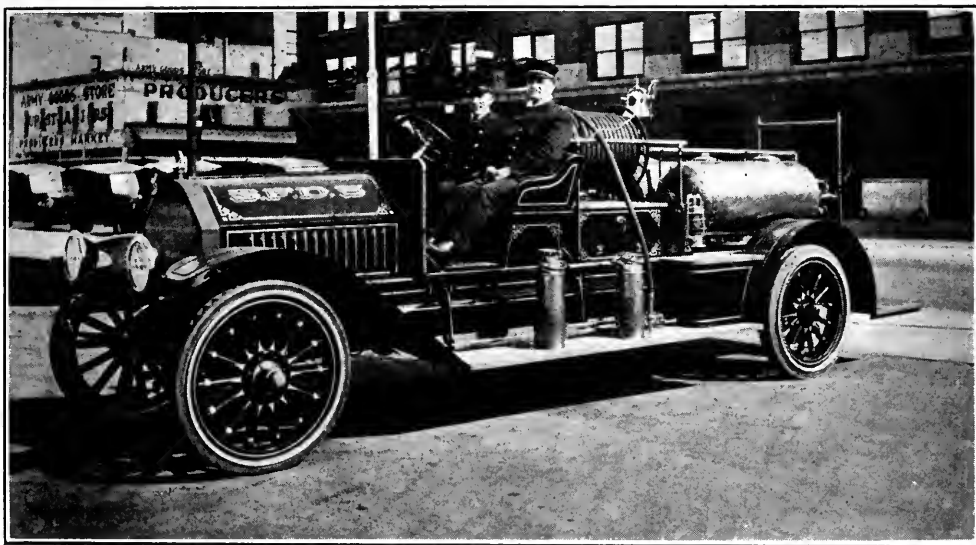
The result of this special election will be of inestimable value in the future development of the city as a deep-water port, and the successful campaign of the Chamber of Commerce has resulted in added prestige for the organization and has greatly increased its influence in the community.

J. H. McLAUGHLIN,  
Secretary, Baton Rouge Chamber of Commerce.

### ***Spokane Chamber Cooperates with Fire Department***

SPOKANE, WASH.—The Spokane Chamber of Commerce, through its Fire and Accident Prevention Committee, has been cooperating actively with the local Fire Department. This year the scope of the work has been enlarged by arranging for two men from the Fire Department to make talks on the subject of fire prevention in all of the grade schools of the city. Men were picked who had ability to interest children, and their talks were carefully prepared to appeal to the child mind.

For the observance of Fire Prevention Week, October 7 to 13, an exceptionally effective program was developed by the committee. This included an essay contest, open to all public and private school students from 5B to 8A grades, on "How to Prevent Fires in the Home." Eight \$5 prizes and one prize of \$10 were awarded to the winners of the contest. Arrangements were made with the local merchants to devote a portion of their advertising



SPOKANE'S NEW CHEMICAL ENGINE

space on October 11 to the subject of fire prevention, and to display posters in their show windows. The Fire Department band and fire apparatus paraded through the down-town streets daily during the week; fire prevention slides were shown at the motion picture theaters; announcements were made before the various civic clubs and other organizations; and special stickers were distributed on all local outgoing mail.

An outstanding feature of the Spokane Fire Department's work has been the constructing of new equipment in the Department's machine shops. The latest machine completed is a double 80-gallon chemical wagon, built on a Wisconsin motor. This machine is the thirty-second piece of apparatus constructed by the Department. It was built in the shop from standard units, under the direction of Chief A. L. Weeks and Master Mechanic E. A. Johnstone, at a cost of \$2,200.

WILLIAM G. OVES,

Secretary, Fire and Accident Prevention Committee, Spokane Chamber of Commerce.

### **Important Public Improvements Voted for Spartanburg**

SPARTANBURG, S. C.—The Spartanburg Chamber of Commerce recently assisted in securing the signatures of more than 70 per cent of the freeholders of the city to a petition calling for a special election in the

matter of a proposed \$500,000 bond issue. As a result, the question was put before the voters, and the bond issue carried by a vote of 770 out of a total of 940 votes cast. It is planned to expend \$400,000 for street and sidewalk improvements, \$60,000 for sewerage extension, and \$40,000 for fire protection.

The program of street and sidewalk improvements includes the opening of two parallel streets leading to East Main Street, the paving, grading and widening of West Main Street, and the extension of the paved sidewalk system throughout the city wherever there is felt to be the greatest need. The balance of the appropriation for street paving will be used for the paving of streets upon the petition of abutting property owners, consideration being given to the priority of the petitions and the needs of the section.

The principal item in the fire protection program is the erection of a fire station in the eastern or northern part of the city. This is necessitated chiefly by the fact that fire-fighting apparatus on its way to fires in the eastern section of the city has often been delayed at the railroad crossing on East Main Street. The erection of the new station will help to eliminate the possibility of serious damage resulting from such delays in the future.

R. B. BEAL,

Secretary, Spartanburg Chamber of Commerce.



## Woodbury, N. Y., Is Prepared! (Is Your City, Too?)

The annual snow peril already hangs over many Northern cities. In some localities the public may be made to suffer for interrupted traffic, snowbound fire equipment, stalled ambulances, trolleys and all other traffic.

But not in Woodbury, N. Y.! Wm. McClellan, supervisor for that progressive city, tells how Woodbury has conquered the snow problem:

"Appreciating the importance of keeping our roads open during the winter months we purchased a 10-ton 'Caterpillar'\* with snow-plow. Before the tractor arrived there was an accumulation of about a foot of snow from the winter storms, and the 'Caterpillar' outfit cleared the roads without difficulty and kept them open throughout the winter.

"The power developed by 'Caterpillars'

equips them to go through practically any snow-storm and they are the only dependable method we know of for clearing snow from the highways. The 'Caterpillar' travels 3 to 4 miles an hour and the outfit is operated by two men. For our purpose we estimate that it should do the work for at least ten years, and we have a feeling of satisfaction in knowing that we are able to take care of a snow-storm at present that kept us laboring for days with all the forces we could command."

There's still time to protect the safety, health, and commerce of your city, no matter what storms may come. Let us give you interesting figures on the performance of 2-Ton, 5-Ton and 10-Ton "Caterpillars"—how they can serve your community the year round as well as in winter. Write today.

*\*There is but one "Caterpillar"—Holt builds it*

**THE HOLT MANUFACTURING COMPANY, Inc.**

PEORIA, ILLINOIS

Eastern Division: 50 Church Street, New York

*Branches and service stations all over the world*

New York, N. Y.  
Omaha, Neb.  
Kansas City, Mo.  
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Holt Company of Texas,  
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**CATERPILLAR**  
Reg. U.S. Pat. Off.  
**HOLT**  
PEORIA, ILL.  
STOCKTON, CALIF.

Chicago, Ill.  
Minneapolis, Minn.  
Indianapolis, Ind.  
Canadian Holt Company,  
Ltd., Montreal

### **Administrative Survey Saves Large Sums for City of Brockton**

BROCKTON, MASS.—A complete survey of the administrative departments of the city of Brockton has recently been completed by Gaylord C. Cummin, civic consultant and representative of the Institute of Public Service, whose services were retained for that purpose by the Brockton Chamber of Commerce. The study was primarily one of methods rather than of policy or personnel, and was made with the hearty co-operation of the city officials, Mr. Cummin acting as a temporary aid to the heads of departments in analyzing their problems and suggesting the use of methods employed elsewhere as possible solutions. The city officials and business men are more than satisfied with the results accomplished.

It is estimated that the actual financial savings, when the recommendations made have all been adopted and are in effect, will amount to over \$170,000, which is about twenty times what it cost the Chamber of Commerce to have the survey made. In one instance the city was saved, for the present at least, the possible expenditure of \$600,000 for a second pipe line from the city's water-supply, a proposition which had

been approved by the City Water Commission and was ready to go before the City Council and the Legislature to secure authority to borrow the necessary funds. A study of conditions showed that this second pipe line was unnecessary at this time, and the proposition was abandoned. The actual financial value of other recommendations, such as the elimination of the supplementary budget, improved budget procedure, and changes in department detail methods, is difficult to estimate, but they will without doubt lead to better and more satisfactory service at the same or less cost.

One of the most important results of the survey is believed to be that the city officials feel better satisfied with their own work because of the new confidence which they have in the quality and cost of service which they are now rendering to the taxpayers.

A comprehensive abstract of Mr. Cummin's report is contained in a special issue of the Brockton Chamber of Commerce bulletin for August 14, a copy of which will be sent to any reader of THE AMERICAN CITY upon request.

F. E. HILTON,

Secretary, Brockton Chamber of Commerce.

## **Conferences for Health Officers and Correspondence Courses for Public Health Nurses**

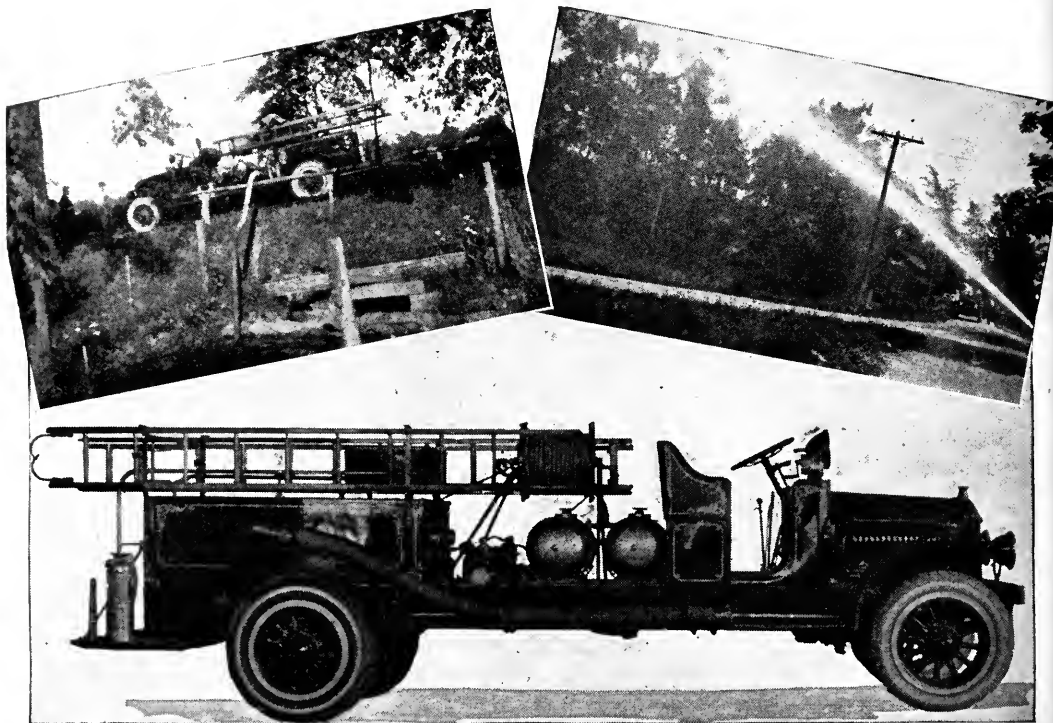
THE first of a series of district conferences for local health officers, called by the New York State Department of Health, was held in Albany on October 5, and similar conferences have since been held in Glens Falls, Plattsburg, Rochester and Watertown. Future conferences have been announced by Dr. Matthias Nicoll, Jr., State Commissioner of Health, according to the following schedule:

November	1.....	Oswego
November	2.....	Utica
November	7.....	Attica
November	8.....	Lockport
November	9.....	Buffalo
November	13.....	Jamestown
November	13.....	Salamanca
November	15.....	Wellsville
November	20.....	Middletown
December	4.....	Binghamton
December	5.....	Elmira
December	6.....	Hornell

Conferences will also be held at Mineola,

Saratoga Springs, and at some point in Westchester, Putnam or Dutchess County, the dates of which have not yet been definitely decided.

Announcement has also been made that the correspondence course for public nurses began its second year in October with an enrollment of 150 nurses. This course was organized in the fall of 1922 by the University and Bellevue Hospital Medical College, cooperating with the State Department of Health, for the special benefit of those public health nurses throughout the state who were unable to take advantage of prolonged residence courses. The course has been approved by the Public Health Council, which requires that all public health nurses employed by public authorities shall have completed a course of instruction in public health nursing approved by the Council.



## Economical Fire Protection With This Combination Unit

Communities that have outgrown the limited utility of hand-drawn apparatus, soon find themselves face to face with the need for automotive equipment. And from the standpoint of economical upkeep and minimum investment, the complete independent unit has many advantages.

This Garford Combination Chemical Engine Rotary Pump and Hose Car Model draws water from brook, pond, hydrant or any other available source. Its maximum speed of 1000 R. P. M. pumps 350 gallons

of water per minute at 120 lbs. pump pressure, which is ample for any emergency.



1000' 2 1/2" hose with 1" nozzle at 80 lbs. pressure at nozzle.

"Essentials in Municipal Equipment" is the title of an authoritative article appearing in the October issue of "Haul-Age," a service magazine to truck operators.

Write for a copy of "Haul-Age." Without charge or obligation we will gladly send it regularly to any city, county, state or federal official who is interested in the progress of motor trucking and dependable transportation.

## The Garford Motor Truck Company, Lima, O.

Manufacturers of Motor Trucks 1 to 7 1/2 Tons

# GARFORD

## DEPENDABLE TRANSPORTATION

# For Superpower Development and Control

By Herbert Hoover

**E**NGINEERING science has brought us to the threshold of a new era in the development of electric power. This era promises great reductions in power cost and wide expansion of its use. Fundamentally, this new stage in progress is due to the perfection of high-voltage, longer transmission and more perfect mechanical development of power.

This superdevelopment of great areas of cheaper power has been dramatized by those less familiar with the problem, as the construction of great power highways traversing several states into which we should pour great streams at high voltages from great giant water-power or central steam stations to be distributed to the public utilities and other large users along the lines of these great power streams. This, indeed, serves perhaps to picture what is meant by superpower development. As a matter of practical fact, however, the natural development of this situation lies first in the interconnection of power supplies between the existing great utility systems, and second, in common action for the erection of large units of production at advantageous points for the mutual supply of two or more of the present systems and in the development of such great water-powers as the St. Lawrence.

In the matter of public relations to power development and distribution it appears to me that one of the first principles we must realize is that the whole of this development implies the free flow of power. We have thus at once created at least a physical and economic interstate question. This great development of so much public interest cannot come about unless there is a complete liquidity in movement of power back and forth across the boundaries throughout the whole of the United States. We cannot secure centralized generation, great water-power development, or interconnection of load unless there is this free flow. Without this we shall have permanently a larger cost of power and less expansion in its service. There are time-honored disputes over states' rights with regard to water, and somewhat similar questions are being raised as to power. Subject always to the sovereignty of states in taxation, etc., unless all citizens irrespective of

state may have the same rights as to use of power we will destroy the hopes of a very great economic development.

The economical distribution of power rests, to a large degree, upon local territorial monopoly. Competitive overlap of power distribution systems would represent tremendous capital and distribution waste. When we accept the principle of monopoly, we at once must accept the principle of public regulation. This is a fundamental conception upon which there is

no need for dispute or argument. It is amply accepted by universal state legislation. Our states have wisely created public service commissions with statewide regulatory power, in order that rates, profits and distribution might be controlled.

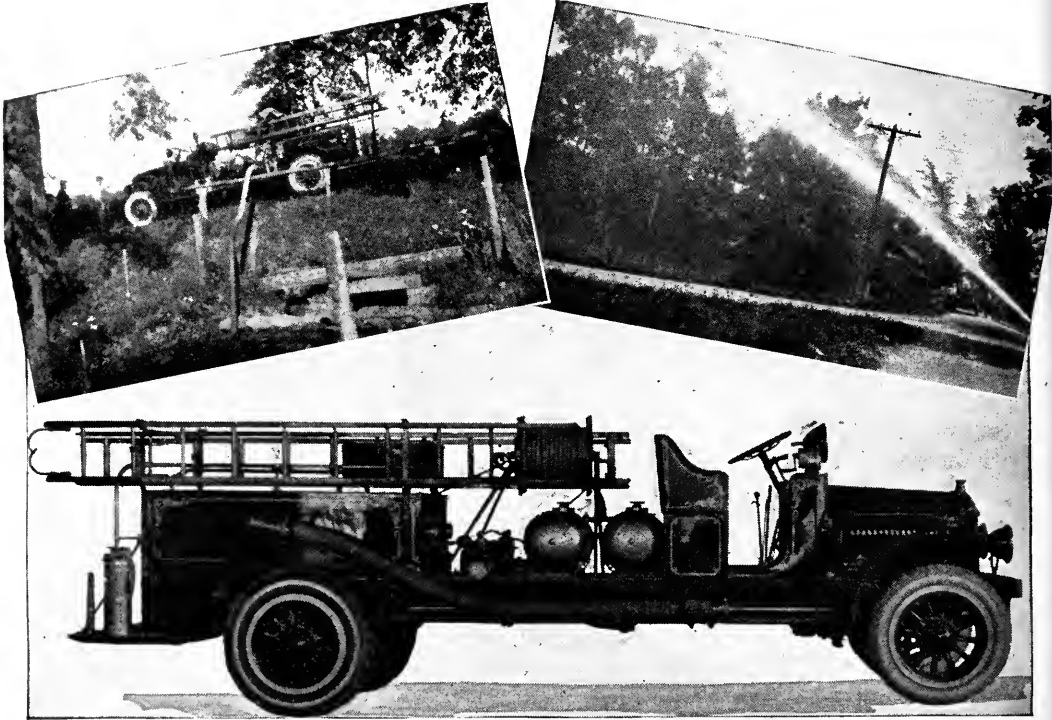
I am not here to advocate superregulation of interstate movement of power. I believe that power development and distribution would find its greatest solution in coordinated state regulation, perhaps with assistance and cooperation of the Federal Government, rather than in any superstructure of authority such as has been found neces-

sary in transportation, unless, of course, necessities of the case cannot be attained otherwise.

There is a phase of this whole public relationship that seems to me to be slowly emerging and that is that the United States will naturally divide itself into several power areas. For instance, the barren area of power consumption formed by the Adirondacks on the east and the character of natural resources along the Mason-Dixon line on the South create a natural district in the New England and Mid-Atlantic States. Another power district lies to the west of the Alleghanies and east of the Mississippi River. Still another district lies in the southeastern states, again in the southwestern states and still another in the northwestern states. The problems in each of these power districts are essentially different as to the origins of power and the character of their industries, and are affected by the rate of probable industrial development in some states. And if we are to make rightful solution of national problems we should consider their development as essentially separate questions.

## Superpower Conferences

With the approval of President Coolidge, a meeting was held in New York, on October 13, under the leadership of the Secretary of Commerce for a preliminary discussion of what cooperative steps Federal and state authorities can properly take in the promotion of superpower development in the New England and Middle Atlantic States. The accompanying paragraphs are from Secretary Hoover's address. The conference recommended that a further enlarged conference should be called at an early date, and that in the meantime certain definite problems should be investigated for presentation at the enlarged conference.



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# DOWFLAKE

## FOR CURING CONCRETE



**DOW**

Have you tried DOWFLAKE in your concrete curing operations? Do you know how useful it is in cold weather? A few years ago everyone would have answered—"No, we never heard of it." Yet DOWFLAKE is coming into daily use for concrete curing as rapidly as Portland Cement concrete itself came ahead a few years after its discovery.

Some state highway departments after two years testing have adopted DOWFLAKE as a daily essential, purchased and used with the same regularity as sand, gravel or cement. Hundreds of highway contractors would hardly know how to do without it.

Don't forget DOWFLAKE for your next job. In highway work, curbs, sidewalks—DOWFLAKE releases forms for use over and over again for it does give concrete the same relative strength in 10 days as it would attain in 21 days under ordinary curing processes.

DOWFLAKE gets floors, sidewalks and pavement-patches into use in less than half the time—avoids tying up equipment and eliminates most of the cost and danger of detouring traffic for patching work. It saves its cost in red lanterns, signs and smashed headlights alone. You dig out concrete and patch it today—and tomorrow the road may be opened.

Write for the new DOW book—"HOW TO CURE CONCRETE." It will prove a source of both information and profit. DOWFLAKE is particularly useful in adding a month or so to the fall construction season, so don't delay trying it.

### THE DOW CHEMICAL CO.

261 Jefferson Street,

MIDLAND, MICHIGAN

Branch Sales Office: 90 West Street, New York City

### DOWFLAKE For Cold Weather

Concrete construction work in cold weather is a hazardous undertaking without suitable protection.

DOWFLAKE provides insurance for the contractor during the season of the year when freezing and thawing is common.

Only two or three pounds of DOWFLAKE added to the mix with every sack of cement will eliminate many risks during late fall construction.



# Business Taxes for Additional Municipal Revenues

By F. A. Helton

Commissioner of Finance, Santa Monica, Calif.

**N**O problem before the American public to-day is given more serious consideration by the individual than the problem of taxation. Owing to the varied geographical locations and resources of the different municipalities, no one general plan of taxation could be adopted by all. It becomes, therefore, the duty of the municipal officials to call the taxpayers together and devise a feasible plan for meeting the financial needs of the community in which they live.

Many cities in the United States have found themselves, doubtless, in the same position as was Santa Monica when salaries and wages in all departments had to be increased, but with charter limitation of a one-dollar rate of taxation for general municipal purposes. This, together with the loss of revenue formerly levied on liquor licenses, presented a serious problem that had to be worked out.

The city of Santa Monica formerly collected a revenue of \$32,000 annually from liquor licenses. At the time this source of income was stopped, the demand came from all departments for a wage increase which amounted to a little more than \$50,000 annually. After careful consideration, we were able to reduce this wage increase to about \$40,000. This added to the \$32,000 loss in revenue meant that we had \$72,000 to meet over and above

our budget estimates. After the members of the City Commission had gone into every angle of the case, we decided that there were only two things possible for us to do—cut overhead expenses and create some method whereby we could supplement the revenue received from our dollar-rate taxation. Upon investigation we found that many cities had created ordinances placing

a special tax or license on almost every form of activity carried on within their respective boundaries.

## Determining the Basis of Taxation

Deputies from the several departments under the Commissioner of Finance compiled a list of every kind of business within the city. After the list was completed, came the task of segregating and classifying, such as merchants, amusements, professional and the other vocations. After this information was compiled, a personal interview

was held with a number of merchants and a confidential statement of their gross business for the past year was made by them. From their statements it was possible to strike a general average of the business done in the city. The percentage of profit in each line of business was taken into consideration, also the number of times that the stock in each line of business would be turned during the year. Investigation

## Explanatory Note by the Author

Santa Monica is governed by three commissioners, one of whom is myself, and it is a fact that none of us heartily favors this form of taxation, but our city is growing so rapidly that it is impossible to make the necessary improvements and extensions required by our citizens out of the dollar rate without raising the assessed valuation to the danger point. At the present time we are collecting 2,000 licenses, which amount to about \$45,000 per annum. I can say conscientiously that our objectors the past year have been so very few that we scarcely note them. Ninety per cent of those who do object are those who come in from outside territory and try to evade the law. We are now in our third year of this ordinance and it is gratifying indeed to note the attitude of our business and professional citizens. Nearly all of those who at first objected are now co-operating with us and helping in every way they can, for they have found that in the long run it is a paying investment.



## *Progressive Cities* Keep Arteries of Travel Open

**A**FTER a demonstration with a C. L. Best 'Sixty' Tractor and a snow plow, we were convinced our city could not afford to be without the equipment," writes the Mayor of a Wisconsin City.

No progressive city will allow a snow fall to block its streets and stifle business activity. Tractors have made removal work too easy for that.

It will pay you to investigate the dollars and cents value of a Best "Sixty" or "Thirty" equipped to keep your streets open. Ask for a copy of our informative book on snow removal.

SALES BRANCHES  
127 Montgomery St.  
San Francisco, Calif.

30 Church Street  
New York City

*Distribution Warehouse*  
820 North Second Street  
St. Louis, Mo.

**C. L. BEST TRACTOR CO.**  
San Leandro, California

98-1123

# BEST TRACTORS

showed that some lines of business were working on a much smaller margin of profit than others, yet those working on the smaller margins were turning their stock so much more often than those demanding a larger profit, that at the end of the year their net profits were as great as or greater than those of the long profit merchants.

The foregoing facts being proved beyond contradiction, it was decided that a license based on the gross business done regardless of the kind of business would be as just and equitable a way of distributing the burden among this class as could be found. The question of selecting business and vocational citizens to pay this license and leaving out what we usually term the private citizen was discussed at some length, the final conclusion being that we were right in excluding the private citizen. Some of the reasons supporting our position are that the business sections of all cities require more police and fire protection, more lights, more rubbish and garbage collections, more street sweepers and other services, all of which the private home owner helps pay through general taxation. We were able to show the business men that they were receiving more for the taxes which they paid than any other class of citizens of our town. Our ordinance also includes peddlers and solicitors of every character, it matters not where they may reside. That within itself is quite a protection to the home business man.

Summing up the information and data we had collected, and with the assistance of our City Attorney, our present license ordinance was drawn and went into effect July 1, 1920. We set the minimum at \$1.50 per quarter for a gross business not exceeding \$10,000 per year, and any new business coming in during the year pays the minimum for the remainder of the year. On January 1 following the opening, we secure a statement of the gross business of such concerns for each month and strike a general average. From that average we fix the amount of their license for the next twelve months.

#### Rates for Business Licenses

Section 103, which shows the rates of our business license, is as follows:

For every person, firm or corporation conducting, managing or carrying on any business, whether as a merchant, manufacturer or otherwise, not otherwise specifically licensed by other

sections of this ordinance, the gross annual receipts of which business amount to:

		Per Quarter
Less than \$10,000.....		\$1.50
\$ 10,000 and less than 15,000.....	15,000.....	2.00
15,000 and less than 20,000.....	20,000.....	2.50
20,000 and less than 25,000.....	25,000.....	3.00
25,000 and less than 30,000.....	30,000.....	3.50
30,000 and less than 42,000.....	42,000.....	4.50
42,000 and less than 54,000.....	54,000.....	6.00
54,000 and less than 66,000.....	66,000.....	7.50
66,000 and less than 78,000.....	78,000.....	9.00
78,000 and less than 90,000.....	90,000.....	10.50
90,000 and less than 125,000.....	125,000.....	14.00
125,000 and less than 150,000.....	150,000.....	17.00
150,000 and less than 200,000.....	200,000.....	22.00
200,000 and less than 300,000.....	300,000.....	32.00
300,000 and less than 400,000.....	400,000.....	42.00
400,000 and less than 500,000.....	500,000.....	52.00
500,000 and less than 750,000.....	750,000.....	72.00
750,000 and less than 1,000,000.....	1,000,000.....	92.00
Over \$1,000,000.....		125.00

We have a similar section covering professional business, such as doctors, lawyers, musical and voice instructors. This section is based upon their gross receipts, and the rates are similar to those in Section 103.

In the event that any person, firm or corporation is conducting, managing or carrying on two or more businesses at the same location and under the same management, the gross receipts from that branch of the business that carries a flat rate are kept separate from the general business which is licensed on the gross receipts; for example, a drug store doing a general drug business and operating a soda fountain, selling light lunches, candy, etc. Our ordinance provides that all soda fountains selling soft drinks and candy pay a flat rate of \$10 per quarter; hence, this druggist carries a license based on the gross receipts for his drug business and a license of \$10 per quarter for his fountain, etc.

#### Special Problems of a Resort Town

This being a resort as well as a very high-class residential town, we have been annoyed for a number of years during our summer months by the opening of small stores for fruits, vegetables, groceries, etc., by the floating population. These floaters cut prices on our regular merchants and in most instances sell goods that are inferior in quality. They are not here during our assessing season in March and we are unable to procure any regular taxes from them. We inserted a section in our ordinance which allows us to charge \$25 a month license for what we term an itinerant vender, classing all newcomers under this section unless they can show proper evidence of permanency, such as a

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Patching break in street with "Tarvia-KP" mix.



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YOU have heard the old saying that "a stitch in time saves nine." This applies to road repairs—and "in time" means now. Patch the roads under your supervision with "Tarvia-KP" this fall and it will save expensive repair work in the spring—will maintain these roads in prime condition during the entire winter.

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"Tarvia-KP" is a bituminous road patching material for every type of road. It is quick, dependable, always ready. It requires no heating, is extremely easy to handle and will stand up under the heaviest traffic. Can be mixed in spare moments, stored, and used at any time. Freezing does not injure it.

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lease. This procedure appeals to the permanent business man and proves to him beyond question that he is really getting something he wants and needs in return for the money he pays as a license.

We have a number of licenses which are based on the requirements of the particular business as to extra police supervision and fire protection. For instance, being a resort city, we have a number of games of skill and amusement devices, clairvoyants, dance halls and "hot dog" stands, for which we charge a flat rate. Our contractors and subcontractors are also on a flat rate. It is difficult to estimate the business done in

our city by the contractors who have their headquarters in other cities. The section of our ordinance relating to this class of business reads as follows:

"For every person, firm or corporation conducting, managing, or carrying on the business, or engaged in the occupation of a general contractor for the construction of buildings or dwellings, or for the construction of street paving, sidewalk and curbs, gutters and sewers, \$60 per annum; payable semiannually."

We have a similar section for subcontractors such as those in electrical work, plumbing, painting and decorating, hardwood finishing, etc., \$30 per annum, payable semiannually.

## Imagination in Town Planning

By Professor S. D. Adshead

**I**T is my view that the best results in town planning will always follow from a well-organized combination of effort: combinations of authorities; combinations of professional advisers; and combinations of interests of all kinds each in their respective sphere.

There may be differences of opinion as to combinations of effort, but, for my own part, I have come to the conclusion that we do not want in the preparation of a town planning scheme either a Moses or a Napoleon. People of this sort are all very well for forcing everyone into the same mold. Town planning exacts the opposite—it means meeting every diversity of requirement that a free community can need.

And, further, I think there is a tendency in most modern undertakings to over-concentration on the intricacies of detail, to the neglect of broad, simple issues, or, as Professor Bickston said at a Botanic Gardens' lecture:

"It is upon the substitution of simple, broad principles for the pedantic minutiae of detail that real progress depends."

Applied to town planning, this means that at the outset of our undertakings we must use the innate imagination of simple, ordinary men. We must not be architects thinking merely of architectural façades; we must not be engineers thinking in water-tight compartments of transport, sewage schemes, and roads; we must not be landscape artists thinking everything depends upon vistral treatments, natural gradients, or the preservation of beautiful belts of trees; nor must we be economists, sociologists, valuers or surveyors, confining attention entirely to efficiency and cost.

Town planners must, in the first place, be ordinary men, and not so well educated as to have lost all imagination and the originality of children. Specialized attainment must at the

outset be laid on one side—that is what I mean by "imagination in town planning."

That the town which contains ancient monuments and historic associations, and which inherits fine traditions possesses advantages over the newer and more modern example cannot be denied; but at the same time, a newer town can, at any rate, be so laid out as to express in a modern way all the varying interests of its inhabitants; the point being to provide the interests.

Had town planning during the nineteenth century woven into its texture all the interests of the people, instead of entirely confining attention to purely physical needs, the towns would have been better places to live in to-day. Such ancient features as village greens, town gardens, market squares, promenades, riverside walks, etc., were never considered a necessary part of the human environment in the building of the nineteenth century town.

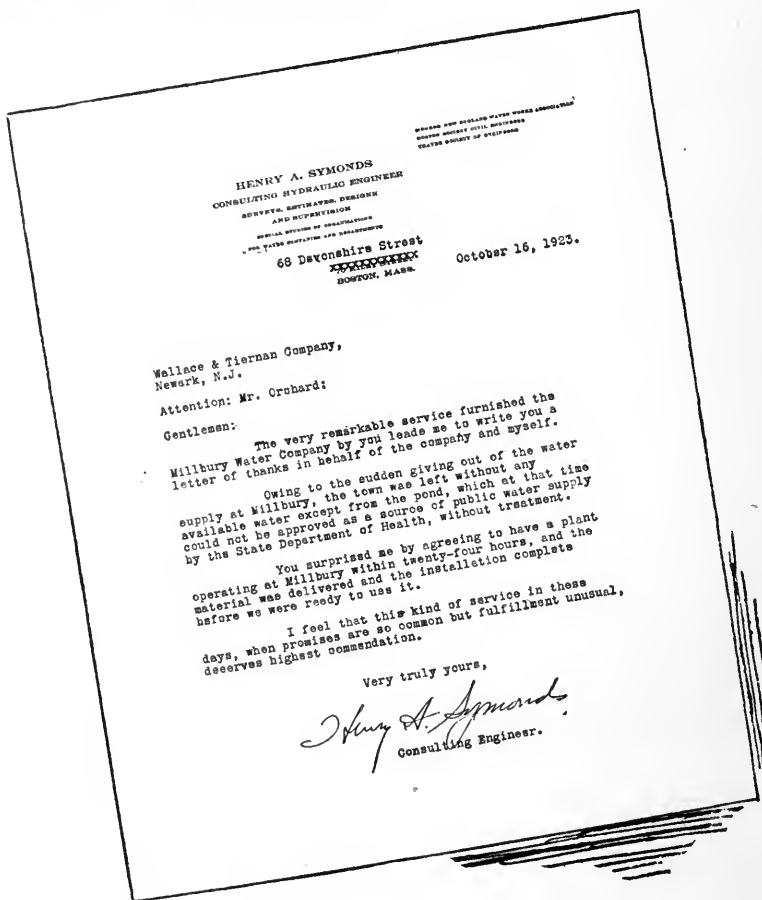
Take a town like Middlesbrough, for instance, or, to get further away, take any nineteenth century American town. With rare exceptions, they do not contain a single feature that can be described as doing more than contributing to the physical comforts of man; their naturally beautiful water-fronts are inaccessible; the streets, all similar, are interminable, and prepared sites for public buildings are altogether lacking.

We have only recently come to realize, and, indeed, it is not safe to say that we have yet as a nation realized, that man wants something more than to be made comfortable. He also wants to be made happy. Comfort in one's surroundings is a great asset, but comfort is not happiness, and to possess happiness, at any rate in our environment, demands something more than the satisfying of bodily needs.

ACKNOWLEDGMENT.—From the Proceedings of the Town Planning Institute (London, England).



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# The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing  
Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

## Sufficiency of Notice of Claim on Account of Sidewalk Accident

A recital in the notice of claim against a city, that the injury was caused "by defective sidewalk located on the northerly side" of a named street, is not a compliance with the statute requiring that claims accurately locate and describe the defect, according to the decision of the Washington Supreme Court in the case of Hanan vs. City of Wenatchee, 201 Pacific Reporter 5. In this case the Court said:

"Statutes of this sort have a number of purposes. One of these is to give the municipal officers notice of the nature of the defect which caused the injury on which the claim for damages is founded, in order that they may pay or otherwise settle the claim before the municipality is mulct in costs. This right is denied them unless the particular defect is pointed out to them. It is a matter of common knowledge that many of the sidewalks in the municipalities are defective in some respects; in fact, it is common knowledge that few, if any, of them are perfect. Not all of these defects, however, will give rise to a cause of action, even though they cause an injury. To say, therefore, that a sidewalk is defective at a particular place and that the defect caused an injury, without anything more, does not give the city that information the law contemplates it should have before suit is instituted against it."

## Power of City to Restrict Electric Signs in Given Localities Upheld

The validity of an ordinance of the city of New York, forbidding maintenance of electric signs over the street on buildings on Thirty-fourth Street, between Fourth and Seventh Avenues, excepting existing signs on theaters and other places of amusement, was upheld by the Special Term of the New York Supreme Court, New York County, in the case of Oppenheim Apparel Corporation vs. Cruise, 194 New York Supplement, 183. The Court said, in part:

"There is no doubt that advertising by illu-

minated signs is very beneficial to business. At the same time, the multiplication of those outstanding signs in this very busy section of the city easily can become an eyesore, a nuisance, and an improper use of the air space over the thoroughfares. We may assume that the Board of Aldermen before passing this restrictive ordinance gave due consideration to the interests of those theretofore maintaining illuminated signs on Thirty-fourth Street, and that the ordinance was adopted as the result of its deliberate judgment that the interest, comfort, and the convenience of the public demanded it. Nor do I regard of any great weight the other ground of objection, to wit, that plaintiffs are unlawfully discriminated against because theaters and places of amusement are not included within the prohibition. The theaters and other places of amusement that may continue to receive licenses for signs are limited to those having such signs on December 31, 1921. . . . Furthermore, if the exception in favor of theaters and other places of amusement be deemed unconstitutional, it can be separated readily from the unconstitutional part, leaving in full force the constitutional part."

## City May Establish Wage Scales to Be Paid on Municipal Work, But Not by Refer- ence to Union Wage Scales

The council of a city validly may fix a minimum wage scale to be paid by the city to its own employees and also require its contractors to observe the scale, holds the Wisconsin Supreme Court in the case of Wagner vs. City of Milwaukee, 188 Northwestern Reporter, 487. But a scale may not be adopted by reference to union scales.

An ordinance of the city of Milwaukee purported to require skilled laborers on work done by or for the city to be paid not less than the prevailing wage for such labor, as determined by the wage paid regular and recognized organizations of such laborers. Declaring this provision, and a resolution of the council fixing a scale in conformity to union wages, to be void, the Court observes, in part:

"This, in effect, declares that some body or

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organization outside of, and independent from, the common council, and other than a state or local administrative body, shall exercise the judgment required to fix and determine a prevailing wage scale. It amounts to nothing less than a surrender by the members of the common council of the exercise of their independent, individual judgments in the determination of a matter of legislative concern and an agreement that, if they act upon the subject at all, the determination of such outside body rather than their own shall control. There is no discretion left with the common council as to the scale; if it fixes any, it must fix that scale determined by the unions. The action and judgment of determining the wage scale is that of the unions, not that of the common council. The power to exercise such legislative function is exclusively in the common council, and their duty and obligation as representatives of the people to so exercise it is coextensive with the power itself. . . .

"If one common council can lawfully bind itself and its successors to accept the judgment and discretion of an outside body in one particular instance representing organized labor, another common council may claim an equal right to bind itself and its successors to accept a scale for a maximum wage to be fixed by some other outside body which may be as much interested in keeping the returns to labor down as labor organizations are to keep them up. If the power to do the former is recognized as legal and constitutional, the right to do the latter cannot be denied. The language, the reason, and the logic of repeated former ruling of this court and of other courts plainly declare that any attempted vesting of the determination of such a legislative question in an outside body is an abdication, and not an exercise, of the legislative discretion that exclusively belongs to the common council itself."

#### **An Ordinance Which Authorized City to Issue Execution Against Delinquent Taxpayers—Held Void by Reason of Failure to Provide for Due Process**

It is a firmly-established rule under the Federal Constitution that one may not be deprived of his property rights through legal proceedings without due opportunity to be heard in defense of those rights. This rule was lately applied by the Georgia Supreme Court in the case of *City of Jackson vs. Kinard*, 115 Southeastern Reporter, 69, in the annulling of an ordinance providing for the issuance of executions against the property of delinquent debtors owing the city for water, light and power service. The ordinance was adopted under charter provision authorizing the adoption of such an ordinance. The Court said of these two provisions:

"This section of the charter does not violate

the due-process clauses of the state and Federal Constitutions. It contains a grant of power, which need not be accompanied with provision for due process; but the Legislature could leave to the mayor and aldermen of the city the enactment of an ordinance upon these matters which would afford due process. . . . It is sufficient if the municipal ordinance, passed in the exercise of the power so granted, provides for due process. . . .

"But the ordinance of the city, under which this execution was issued against Kinard, does not provide for any notice to customers, and does not give to them any opportunity to be heard on whether they are liable for the amounts claimed against them for electric power furnished them by the city, and for which such executions are issued. The party against whom an execution issues is wholly without remedy to contest his liability. He must pay whether he is liable or not, or his property will be sold. The gist and very heart and soul of due process are notice and opportunity to be heard. . . .

"As this ordinance does not provide for notice, and an opportunity for a hearing, to parties against whom executions issue to collect charges for power, it is unconstitutional and void so far as claims for power are concerned."

#### **A Municipal Franchise Not to Be Treated as Exclusive Unless Manifestly So Intended**

A contract reciting that, in consideration of the contractor's fully equipping himself to haul "all garbage and refuse" required by ordinance to be removed from the city, the right of hauling such garbage and refuse is granted to him for a specified term is held by the Wyoming Supreme Court not to preclude the city from awarding concurrent contracts to different contractors. (*City Sanitation Company vs. City of Casper*, 206 Pacific Reporter, 149.)

In the course of its opinion the Court says:

"Now it is a well-settled canon of construction that generally all that is granted by the grant of a franchise or privilege of a state or municipality must be found in the plain terms of the grant, and nothing passes by implication except when it may be necessary to carry into effect the obvious intent of the grant. . . . It seems that, according to the ancient doctrine, such a grant was by implication exclusive; but that doctrine has almost unanimously been condemned by the courts as inapplicable to the situation and political institutions of this country, and the policy of the law is to regard with disfavor any claim to exclusive privileges and franchises."

Legal decisions affecting zoning are now published each month in Frank B. Williams' department of "Zoning Notes" on another page.

*The illustration is a reproduction from an oil painting of a King ornamental lighting standard in Kansas City, Kansas.*

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# Relation of Alcohol to Citizenship

By Eugene Lyman Fisk, M.D.

Medical Director, Life Extension Institute

THE question before the American people to-day in relation to prohibition is not whether or not they shall have personal liberty. Personal liberty to do as they please, to do anything under any and all circumstances, they never can have under a free and enlightened government. The question to be decided is whether or not alcoholic beverages of a strength to prove toxic are a menace to society. If it be decided that they are a menace to society in their total influence, then it is constitutional to forbid the circulation of these beverages among the people. It is just as constitutional as to take rational measures for protecting us against tuberculosis, typhoid and venereal disease.

The human race has experimented for many thousands of years with alcohol and always with the same purpose, no matter how it may be disguised as an alleged food accessory or a mere thirst-quencher, and that purpose is to secure its drug effect, to numb the critical faculties that enable a human being to appreciate his limitations and the menacing factors in his environment. This is all there is to the so-called stimulating effect of alcohol and to the alleged instinct for its use. The instinct is simply to seek a short cut from trouble and a short cut to happiness. Life would indeed be simple if we could attain such ends without working for them; if its highest prizes could be handed to us by a bartender for the price of a drink. So far as bringing any real happiness or offering any real solution of a man's individual and social problems are concerned, there is absolute proof that alcohol has been carried by society as a burden and a liability; that it

undermines our capacity for joyous living.

I deplore the poor sporting spirit and lack of imagination and fairness of any man who would not welcome the opportunity to break the continuity of this alcoholic experiment that is an obvious failure after 30,000 years, and give a trial for at least five or ten years, or, what would be far more conclusive, a full generation's length, to a denarcotized world.

## The Menace of Moderate Use

We must deplore the direct damage that alcohol does when used in gross excess, but it is used in gross excess by a comparatively limited number of people. *I firmly believe that its greatest menace to society lies in its so-called moderate use,* which, among the great mass of people who use it daily, but in so-called moderation, results in diverting these people from other resources of an up-building and constructive character. How much latent capacity for achievement, for adjust-

ment, for business, social, scientific and artistic success has been narcotized and suppressed throughout a whole lifetime by alcohol we shall never know, but we know enough about its influence to be sure that it has thus maimed and crippled many millions of lives.

No one with any knowledge of human nature and the pathology of the human mind can doubt that the essence and the core of so-called "red" propaganda arises in abnormal personalities and draws its largest support from the mentally and physically diseased. Therefore, I say that it is an obligation of true citizenship, as implied in Huxley's words, to measure up,

### What Is Personal Liberty?

Many years ago Huxley, one of the most ardent advocates of individual freedom of speech, thought and action, wrote:

"It is a necessary condition of social existence that men should renounce some of their freedom of action. There is no country or nation in which an adult man has exclusive possession of himself. In fact, the very existence of society depends on the fact that every member of it tacitly admits that he is not the exclusive possessor of himself and that he admits the claim of the polity of which he forms a part, to act to some extent as his master."



An Alundum Safety Tread Stairway in the Hotel Tuller Building, Detroit, Michigan

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not only to the moral standards of an enlightened society and loyally to obey the laws of the country until they are changed by the will of the people, but to give a good account of the custody of the physical body in which the citizen lives and has his being. It is an obligation of citizenship to refrain from any act that tends to impair the quality or shorten the life of that body unless it be an act of justifiable self-sacrifice in defense of society or of some fellow being.

We must appreciate that alcohol, like other narcotic drugs, is not alone harmful in its immediate toxic effect, but in its tendency to enfeeble the will power and lead to increased indulgence. Even though 2.75 per cent beer does not in average amounts induce any visible evidence of intoxication that a jury would recognize, the fact that the habitual use of this beverage by thousands of people would in time induce a certain proportion of these people to increase their indulgence, is a far more important fact than the question as to whether a man becomes a little talkative and emotionally uncontrollable after a few glasses of beer.

We are repeatedly told of the uplifting effects of light wines and beers in the countries where they are widely used; but we get no such testimony from the medical profession in such countries. In France, particularly, there was a veritable wail of agony during the war from the medical profession with regard to the need for alcoholic reform. The use of light wines and beers has not apparently inoculated these peoples against the evils of alcoholism. Neither are the death-rates or the hygienic conditions in these countries any warrant for regarding their alcoholic customs as beneficial. True, we often hear advanced the plea that in Mohammedan countries where alcohol is not used the population is often degraded and physically degenerate; but there are so many other factors that influence racial quality that such comments have little meaning. England's power was

not due either to alcohol or roast beef, any more than Greece's intellectual clarity and artistic excellence was due to fish food.

Fortunately, the statistics that we rely upon are based on comparisons of the results in homogeneous groups, groups that were practically the same except for alcoholic indulgence; and in these groups the death-rate increases as alcoholic indulgence increases and as the exposure to alcoholic influence increases, as in various occupations.

### To Sum Up the Evidence

It is quite possible that the immediate destructive effect of alcohol on the tissues of the body has been much exaggerated, but its indirect harmful effect on life itself, on conduct, on our ability to direct our lives into channels that lead to health, long life and happiness, has been greatly underestimated.

I would not be misunderstood in this matter. I am not advocating a hairshirt, cheerless existence, in which the sole satisfaction in living that we attain is a sense of duty well performed. This sense is a splendid underpinning for any life. But I firmly believe in the possibility of a joyous existence, or laughter that is not poison-produced, of red-blooded vital enjoyment of the good things of life not seen through an alcoholic haze. As against that personal liberty which is a mask for mere self-indulgence, I would place that personal freedom which means physical freedom—freedom and ability and strength to stand alone, to meet life's struggles clear-eyed, confident and smiling.

**ACKNOWLEDGMENT.**—The foregoing paragraphs are from a comprehensive article by Dr. Fisk in *The Annals of the American Academy of Political and Social Science* for September, 1923 (Vol. 109, No. 198). This issue of *The Annals* contains a notable series of articles on Prohibition and Its Enforcement, occupying nearly 300 pages, and grouped under four main classifications: I. The Pros and Cons of Prohibition; II. Some Phases of the Effect of Prohibition; III. Problem of Enforcement; IV. World Struggle with Liquor.

As the human mind is greater than the waterfall which it compels or the lightning's flash which it confines, so the control of human destiny is a nobler object of inquiry than the search for material power.—From *The Economic Basis of Politics* by Charles A. Beard.



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# Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York (233 Broadway), and from other sources  
For further information, Mr. Williams may be addressed in care of  
THE AMERICAN CITY MAGAZINE, 443 Fourth Avenue, New York

## Recent Zoning Ordinances

- Fresno, Calif.—Ordinance No. 1003, July 5, 1923  
Monrovia, Calif.—Ordinance, Sept., 1923  
Richmond, Calif.—Ordinance No. 531, July 31, 1923  
South Pasadena, Calif.—Ordinance No. 605, June 11, 1923  
Venice, Calif.—Ordinance, July, 1923  
Lakewood, N. J.—Ordinance, May 12, 1923  
Ashtabula, Ohio.—Ordinance No. 1236, September 10, 1923

## Recent Zoning Decisions

*Mississippi*.—Fitzhugh v. City of Jackson, 97 Southern Reporter 190 (July, 1923).—A city ordinance provided that no business structure should be erected, or business enterprise started, in "residential areas" within the city except on petition addressed to the city council, signed by more than half the owners in fee of land within a radius of 400 feet of the center of the lot upon which the proposed operation is to be located, permission to be granted in whole or in part by ordinance, with such conditions as may seem proper. An application for a permit to erect a grocery store was refused by the building authorities because the location was in a "residential part of the city" and the applicant had not complied with the ordinance. *Held* that the ordinance was void and its enforcement would be stayed by injunction.

The question in the case necessary for its decision was whether or not the very general provisions of law with regard to the police powers of the city authorized the ordinance. On this point the Court holds that the ordinance is not within the powers delegated to the city by the state. It goes on to say that even if authorized, the ordinance and statute would be contrary to the constitution of the state. Experience shows that such statements, not necessary to the decision of the case, carry little weight with courts in subsequent matters coming before them.

It will be noted that the consent of neighboring property owners is made a prerequisite to the permit to build. For a reference to the many decisions with regard to such provisions, see "The Law of City Planning and Zoning," page 266. To such ordinances, always partial, usually prepared and applied without any study of the city as a whole or even of the locality most concerned, considerations apply which differ greatly from those applying to

what may be called actual, properly drawn zoning ordinances.

*Missouri*.—State ex rel. Penrose Inv. Co. v. McKelvey, Supreme Court of Missouri (en Banc). April Term, 1923 (No. 23812).—The Penrose Company sought permission to erect a building for an electrically driven ice manufactory on a lot partly in a commercial, partly in a residential district, contrary to the provisions of the St. Louis zoning ordinance. St. Louis, unlike several other Missouri cities, has not been given expressly, by state statute, the power to zone. In a 4 to 3 decision the Court, following the earlier *Evraiff* case, holds that the city was not authorized by the provisions in its charter with regard to the police power, to pass the ordinance in question; and, as in the previous *Evraiff* case, goes on to declare the ordinance contrary to the state constitution. This expression of opinion, not necessary to the decision of the case, is unfortunate. A vigorous effort is being made to secure a rehearing.

*New York*.—Matter of Kelmenson and Ano (Mann and Ano), Supreme Court, reported in *New York Law Journal*, August 28, 1923.—The Tenement House Commissioner approved the plans of a tenement in New York City, located partly in a "C," partly in a "D" area district. Considering the portions of the building in each of the two districts as distinct buildings, he authorized courts smaller than if the entire building had been in either one of the districts. *Held* that the structure must be considered as one building, and the calculations for the size of that portion of the courts in each district made in accordance with the regulations for that district.

The law expressly provides for an appeal to the Board of Appeals where portions of a lot lie in two different use districts, but not where they are in two area districts. It seems that the Board has jurisdiction to grant relief in such cases under its power to vary the regulation in harmony with its general purpose where there are practical difficulties or unnecessary hardships in the carrying out of its letter.

*People ex rel. Ventres v. Walsh*, Supreme Court, reported in *New York Law Journal*, September 18, 1923.—The Fire Commissioner of New York City issued an order prohibiting under the zoning regulation the prosecution of the sand-digging industry on a given tract of land in a residential district. The Board of Appeals reversed his order. *Held* that the action of the Board was unwarranted. It is plainly a prohibited use in a residential dis-



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trict, and the claim that it is the continuance of a non-conforming use is not warranted by the facts; nor was the order of the Board valid under any of its powers to vary the zoning resolution.

*The Nutley, New Jersey, case.*—On September 28, 1923, a conference of New Jersey municipalities was held at the City Hall, Newark, under the auspices of the New Jersey League of Municipalities, to consider the case of State ex rel. Ignacinas v. Risley, Building Inspector of Nutley, which so gravely affects them all. It was voted that the separate municipalities, as well as the League, support Nutley financially in its appeal of that case, and join in the appeal. The appeal will be heard before the Court of Errors and Appeals (the highest court of the state) on the third Tuesday in November.

Edward M. Bassett, Esq., of New York, is writing a series of zoning articles, which are being published from time to time in the New York papers. The first was entitled "Zoning Versus Restriction"; the second is called "Proposals of New Commercial Zoning District." Others will appear later.

William D. Ennis, Vice-President of The Technical Advisory Corporation, 15 Park Row,

New York, has published a ten-page pamphlet on "The New Jersey Zoning Decisions."

### Are Constitutional Amendments Desirable?

City officials and civic organizations in St. Louis, in order to safeguard the power of municipalities in Missouri to pass zoning ordinances, so seriously threatened by the recent court decisions in that state, are thinking of urging the insertion of a clause expressly authorizing zoning in the new constitution to be voted on next February. New Jersey municipalities, for a similar reason, are considering the desirability of a similar course. An adequate amendment of this sort will be difficult to frame. Massachusetts is already beginning to doubt whether her amendment is altogether happy in form. Powers like the police power develop more successfully and, in the end, more broadly, wherever possible, by judicial decision stimulated by growing custom and strengthening public opinion than by constitutional amendment in which the content of the power is necessarily defined and limited. Certainly such a remedy for the evils of the present situation in Missouri and New Jersey should be the last resort; especially since in other states, where carefully framed state enabling acts are to be found, proper zoning is receiving support from the courts.

## Standard Couplings for Mutual City Aid in Fighting Fire

THE practicability of changing non-standard fire hose couplings to conform with the national standard was demonstrated at a recent meeting of the National Fire Waste Council in Washington, by Major J. H. Howland, Engineer of the National Board of Fire Underwriters, assisted by the Bureau of Standards of the Department of Commerce. It was shown that the regular fire hose couplings of Syracuse, N. Y., New York City, Baltimore and Washington, no two of which are now interchangeable, could be made completely interchangeable by the simple operation of rethreading with standard threading tools.

The use of different threads on their fire-fighting equipment prevents many communities from helping each other in case of serious fire. Thus in the great Baltimore fire, apparatus brought in from Washington and Philadelphia could not be connected to the Baltimore hydrants. In the San Francisco fire the city's water-supply had been cut off by the earth-

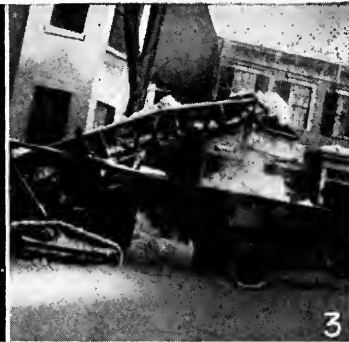
quake. There were warships in the harbor with powerful pumps that might have been of material assistance in fighting the fire but for the fact that their couplings would not fit the city's hose.

In both these cases millions of dollars' worth of property were destroyed that could have been saved had the threads on the fire equipment been standardized, and many towns and cities throughout the country are still exposed to this danger in case a fire ever gets too big for the local apparatus to handle. The rethreading tools make it easy and inexpensive in most cases to change the equipment to standard. Existing couplings can be rethreaded at very moderate cost and new equipment of standard dimensions purchased as the old equipment wears out. About a fourth of all the towns in the United States are now using the standard coupling, which was chosen as being the one in which the necessary changes could be more easily made.

## Local Coal Storage to Reduce Coal Shortage

THAT more adequate provision for the local storage of coal in American cities would aid greatly in reducing the degree of intermittent operations of the coal industry and therefore relieve it and the public of many of the bad conditions now prevailing in relation to the coal supply, is the opinion of the Engineering Coal Storage Committee of the Federated American Engineering Societies. Results of far-reaching economic and social importance are expected from a nation-wide

study now being made by the committee with the cooperation of more than 500 engineers, serving on nearly 100 local committees. The field work of the investigation is being directed by Dean Perley F. Walker, of the University of Kansas, who expects to have ready about January 1, 1924, a report which will place at the disposal of the nation the most authoritative information obtainable as to the engineering, chemical and economic factors involved in the storage of coal.



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5. In Albany a Barber-Greene loaded 45 trucks an hour last winter.



## Old-fashioned Snows Come Every Year and Now New Methods Must be Used to Fight them

Just as much snow falls now as in years past, but the drifts that seemed deep to us as children don't look so big to us now that we are grown.

Not only is there as much snow now as there was 30 years ago, but there seems to be just as much as there was 100 years ago. Philadelphia has kept weather records for 250 years. These records show an average yearly snow fall of 22.2 inches.

For the last ten years the Philadelphia average has been 25.9 inches.

It is certain from the Philadelphia records and from the Weather Bureau's figures for the entire country, that our winters now bring as heavy snows as the country has known.

Because of the greater dependence on

transportation of all kinds, the snow must be removed much more rapidly than formerly in order to avoid heavy losses to business and industry.

Many cities are speeding up snow removal and cutting its cost by using Barber-Greene Snow Loaders.

Chicago was the first to use one and found that it saved \$450 per eight hour shift in 1920. The Boston Elevated Railway estimates that theirs does the work of 150 men.

Schenectady, Philadelphia, Albany, Pittsburgh and Springfield, Mass., are among the many other cities in which Barber-Greene's are used.

Send for "Mechanical Snow Handling," which describes the Barber-Greene and the new side discharge design.

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# Hints, Helps and Happenings

## Five Factors in a Successful Public Accident Prevention Campaign

**A** PLAN for a community safety campaign adaptable to a city of any size was laid before a conference held in Montreal on October 17, at the call of the Canadian National Safety League, by C. W. Price, Vice-President of the Elliott Service Company, of New York. Five activities were described as determining factors in the success of such a campaign:

1. A properly organized Safety Week campaign to make people realize that it is possible to avoid accidents and so to properly introduce a permanent safety campaign

2. Systematic daily safety instruction in the public and parochial schools

3. A year-round safety poster campaign on the streets

4. A free Safe Drivers' School for operators of commercial vehicles

5. An intensive educational campaign through the press

The detailed plans embodying these five features, which were found to be successful in reducing accidents in Washington, Baltimore, Pittsburgh, Louisville and New York, and the material which was designed for use in these cities, are now available to any community.

## Value of Traffic Movement and Accident Maps

**T**WO kinds of maps which will aid any city in the reduction of street accidents were recommended by the Committee on Public Accident Statistics of the National Safety Council at the annual convention of the Council, held last month in Buffalo. The committee's suggestions for these maps follow:

(a) *Traffic Movement Studies.*—The first effort of any city should be to describe the facts for traffic movement within the city, and a "traffic artery" map is recommended as an aid to such procedure. This should show the main traffic arteries from each community into the heart of the city. Such a map would show how traffic could be directed into different channels, traffic control simplified and conditions greatly improved. As an example of what an adequate map can do, the committee found one city to have seldom-used streets which, when linked up, served to carry 10,000 vehicles a day between two areas in 20 minutes less time. Such a map would enable a city to develop right-of-way stop plans for main arteries, block systems and one-way streets and would suggest further development of safety zones, regulation of parking, supervision of street car traffic, and the economic dispatch of commercial transportation.

(b) *Traffic Accident Spot Maps.*—The committee also recommends that each city maintain spot maps of traffic accident occurrence; then it would be possible to identify such conditions as lack of traffic discipline and the location of troublesome, specific situations. Few cities have maps which show where accidents occur, the type of accidents and the degree of their gravity. There is hardly anything quite so important as this graphic method of locating specific situations. In one city it was found that 30 per cent of all serious accidents were concentrated at 87 points. In another city 28 per cent of all recorded accidents were at 64 points; in another 46 per cent were at 57 points. To-day, from 80 to 90 per cent of all traffic accidents usually occur outside of congested districts and approximately 70 per cent of these accidents are at street intersections. Information of this character points the way to definite and effective action. When accident spot maps are maintained, the need for proper traffic accident reports will be realized. In the lack of proper record control, the committee observes that under prevailing conditions traffic can be counted upon to follow the lines of least resistance in spite of all general regulations to the contrary.

## Campaign for Public Superpower System by Public Ownership League

**A**CTING on instructions of the international public ownership conference held in Toronto, September 10-13, officials of the Public Ownership League of America announce that they are about to launch a nationwide movement for a public superpower system to cover the American continent.

"Such a system," declares Carl D. Thompson, Secretary of the League, "will result in a production of electric power far beyond the wildest dreams of the engineers of the private power companies of to-day; will reduce the cost of the service to one-half, if not one-third present rates, make possible the universal use of electric power, electrify the continent and open the greatest era of prosperity and progress the world has ever known."

As a first step, the officials of the League were instructed to have drawn a suitable measure for introduction at the next session of Congress providing for a Federal Superpower Commission to be charged with the duty and responsibility of developing the nation-wide public superpower system in cooperation with state, municipal and local public agencies. Next, the plan contemplates a careful canvass of the members of Congress to ascertain their views upon the subject and to supply them with data relative to the possibilities of such a system as is proposed.





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*Now—*

Roads and streets are cleared of snow quickly and at small expense with a Champion Snow Plow.

Meanwhile, an appeal is to be addressed to the governors of all the states and to the state legislatures, urging their support for the movement and the measures, both in Congress and in their respective states. Similar appeals are to be made to the municipalities throughout the nation, and to civic organizations, to support the movement.

## Bus and Trolley Transportation Should Be Coordinated

**C**OORDINATED transport with motor bus and trolley working together was the solution of the urban traffic problem suggested by Alfred Reeves, General Manager of the National Automobile Chamber of Commerce, in his address before the recent annual convention of the American Electric Railway Association at Atlantic City. In his discussion of the subject, Mr. Reeves pointed out that while electric lines are still the best means of mass transportation, trolleys alone cannot properly handle all street transportation under present congested conditions. Electric railway com-

panies cannot afford to operate in sparsely settled territories; neither can they supply the flexible service offered by the trackless motor which loads and unloads at the curb while permitting other traffic to pass. A combination of the bus and trolley seems to be the real answer. However, it is doubtful if the public will support bus lines conducted on a trolley basis, and the aim should be to give a bus seat to every passenger, as has been done successfully in New York, Chicago and Detroit.

In considering the question of whether or not the trolley shall own and operate the busses, or whether the bus operator shall be under control independent of trolley management. Mr. Reeves stated that the answer will come from the public, which will support that type of management which gives the best service. He also emphasized that in bringing about coordination, either existing bus transportation should be permitted to continue independently or else the operators should be paid a sum not measured by the second-hand value of the equipment, but based on its value as a going concern which has proved its value to the community.

# The Municipal Bond Situation

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

**A** REVIEW of the municipal financing done in the last few years indicates that the market is adjusting itself to its normal level. The avalanche of tax-exempt issues that started in 1919 was precipitated by the fact that municipal improvements were curtailed during the war. Another and probably a more direct cause was the Capital Issues Committee, to which all issues of \$100,000 and more had to be submitted for its official approval before the bonds could be sold. Naturally, the only issues which the Committee would sanction were those which were absolutely necessary. The Committee was dissolved January 1, 1919, immediately after which municipal borrowing increased steadily until July of this year.

Coincidental with this vast output of municipal securities was the sudden demand for tax-exempt investments as a result of the new Federal income tax law which, as is generally known, exempts from taxation all state and municipal bonds. The fact that investors have not been seeking municipals so feverishly this year is taken to mean that the bulk of the switching of large fortunes into tax-exempt securities has been accomplished. The consequent result has been a forced rise in

bond yields in order to attract investors not so much concerned over taxation. A municipality that enjoyed the low interest rates of the period of inflation will find it necessary to pay a much greater interest rate if it is seeking funds in the immediate market.

For example, let us take the state of Illinois. On October 17 the state sold \$6,000,000 Highway 4's and \$15,000,000 Soldiers' Bonus 4¾'s to yield about 4.70 per cent, whereas in May of this year similar issues were sold to yield about 4.50 per cent. In February of this year Highway 4's were floated on a 4.14 per cent basis, and in September, 1922, a similar loan was placed at a 4 per cent rate, showing an increase of more than ½ of 1 per cent in the past year.

## IMPORTANT STATE AND MUNICIPAL BONDS SOLD DURING OCTOBER

Amount	Borrower	Maturity	Rate (%)	Net Yield (%)
\$439,000	Schneecetady, N. Y.	1924-43	4½	4.41
952,000	Louisville, Ky. . . .	1960	4½	4.46
3,199,000	Newark, N. J. . . . .	1924-63	4½	4.49
1,875,000	Hawaii, . . . . .	1953 Opt. 1943	4½	4.52
15,000,000	Illinois, . . . . .	1924-43	4¾	4.73
6,000,000	Illinois, . . . . .	1926-48 & 1941-43	4	4.62
1,000,000	Porto Rico, . . . . .	1925-48 Opt. 1944	5	4.73
1,073,000	Toledo, O. . . . .	1925-48	5	4.75
600,000	New Orleans, La. . . . .	1939-44	5	5.00
1,000,000	Akron, O. . . . .	1925-44	5¼	5.01
1,050,000	Duval Co., Fla., . . . .	1928-53	5	5.14

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# Municipal and Civic Publications

*Prices do not include postage unless so stated*

**Municipal Government and Administration.**—By William Bennett Munro, Ph.D., LL.B., Professor of Municipal Government in Harvard University. 2 vols. The Macmillan Company, New York. 1923. IX + 459 pp. and VI + 517 pp., respectively. \$6.00.

The first of these volumes deals with the history and organization of municipal government, the second with its activities and methods. The history of municipal development from earliest times to the present day and the organization of municipal government as it now exists are presented under the following divisions: The Evolution of the City; The Legal Foundations of City Government; The People's Share in City Government; and Municipal Organizations—the City Council, the Office of Mayor, Commission Government, the City Manager Plan, and the Government of Metropolitan Communities. The volume on Administration includes these divisions: The Administrative Mechanism; City Planning and Public Works; Public Safety; Public Health and Social Welfare; Public Utilities; and Municipal Finance. While this book is an international study, American cities receive the preponderance of attention and emphasis. The material in this book, by one of the foremost experts on municipal government, is presented in an enlivening, illuminating style that holds the reader's interest throughout.

**Report and Recommendations on a Physical Plan for a Unified Transportation System for the City of Chicago.**—By R. F. Kelker, Jr., Consulting Engineer. 175 quarto pp. Views, plans, large maps, tables. Apply to the Bureau of Statistics and Municipal Reference Library, City Hall, Chicago, Ill. \$2.00 to residents of Chicago; \$2.25 to non-residents, postpaid.

The recommendations are: consolidation and coordination of all local transportation lines so as to permit unified operation; single fare on the unified system within city limits, with transfer between rapid transit and surface lines; construction of subways and expansion of existing elevated and surface railways to form a unified system. A first and a second period of construction are definitely laid out.

**Economics and the Household.**—By Benjamin R. Andrews, Ph.D., Associate Professor of Household Economics, Teachers College, Columbia University. The Macmillan Company, New York, 1923. VII + 623 pp. \$3.25.

The relation of home economics to the life of the community is of great importance. The author says: "The book is not simply a treatise on the management of a home, but rather a consideration of the economic matters that concern all homes." The chapters on "Housing and the Home" and "Social Aspects of Housing" are of especial interest from the view-point of the student of municipal and civic affairs.

**New Haven Health Center Demonstration.**—Report by Philip S. Platt, M.A., C.P.H., Director for July, 1920–June, 1923. 108 pp. Illustrated. A critical account of the work of the Center as carried on for three years in the Italian section of the city. A frank discussion of success and failure. (Apply to the Department of Health, New Haven, Conn.)

**Safety from Fire.**—Prepared by Wharton Clay, structural engineer, and Erwin M. Lurie, civil engineer, for Associated Metal Lath Manufacturers. Fire protection engineering as applied to construction and occupancy of buildings, with recommended building ordinances for protection to life and conservation of property. 74 pp. Illustrated. Showing the value of expanded metal lath in building construction. (Apply to Associated Metal Lath Manufacturers, 123 West Madison Street, Chicago, Ill.)

**Ninth Biennial Report of the State Board of Forestry of the State of California.**—1923. 73 pp. Illustrated. An interesting account of the work that is being done to protect and continue the timber supply in California, to maintain watershed protection, to develop great recreational areas, and to further highway tree planting. (Apply to M. B. Pratt, State Forester, Sacramento, Calif.)

**Hydraulics Applied to Sewer Design.**—By G. S. Coleman, Lecturer in Municipal and Sanitary Engineering, Municipal College of Technology, Manchester, England. D. Van Nostrand Company, New York. 1923. VIII + 150 pp. Diagrams and tables. \$4.00.

A handy volume based on both English and American experience for practical use in the design of sewers. A chapter is devoted to the data needed for use in calculations, and two to the various discharge formulae for channels and weirs, and the work of a distinctly theoretical nature is confined to the five appendices.

**International Cities and Town Planning Exhibition.**—English Catalogue of the Jubilee Exhibition in Gothenburg, Sweden, 1923. Werner Hegemann, editor. 390 pp. 370 illustrations. Sent upon application to Internationala Stadsbyggnadstställningen, Norra Hamngatan 14, Gothenburg 1, Sweden. \$2.00.

This catalogue presents the latest international survey of town planning activities and contains one of the largest and most interesting collections of city planning photographs, plans and diagrams from all parts of the world ever brought together in one volume. A large amount of information relative to the exhibits is given. The general articles dealing with the various aspects of town planning in the exhibiting countries were contributed by leading experts of different nationalities.

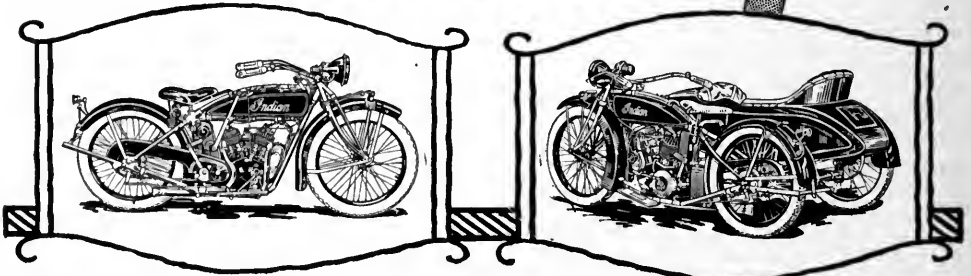
**Sewage Treatment in the United States.**—Report on the study of fifteen representative sewage treatment plants, by H. H. Wagenhals, E. J. Theriault, and H. B. Houlmon. Public Health Bulletin No. 132 of the United States Public Health Service. July, 1923. 260 pp. Photographs, diagrams, tables. Prepared by direction of the Surgeon General from a study in the summer of 1920 for the purpose of getting first-hand, uniform and comparable data upon the efficiency of representative plants in actual routine operation. Price, 50 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**How Ontario Does It.**—"A New Kind of Business Partnership." Bulletin No. 88 of the National Popular Government League, 637 Munsey Building, Washington, D. C. October 6, 1923. 15 mimeographed quarto pp. A second bulletin on the Hydro-Electric Power System of Ontario, Can., answering questions from readers of the first bulletin on this subject (issued last April), and presenting in detail the various steps of the development of the undertaking, also commenting on the Muscle Shoals situation. (Apply to Judson King, Director of the League.)

**Railroad Facilities and the City Plan.**—A report of the City Planning Board of Springfield, Mass., on the subject of railroads in the city. August 28, 1923. 21 pp. Based on investigations made by the Technical Advisory Corporation, of New York City, and viewing the railroad problem simply as one phase of the larger problem of planning ahead for Springfield. (Apply to the Technical Advisory Corporation, 15 Park Row, New York, N. Y.)

**Americanization in the United States (1920-1922).**—By John J. Mahoney, Professor of Education, Boston University. Bulletin, 1923, No. 31, of the U. S. Bureau of Education. 42 pp. Giving various interpretations of the word "Americanization," and a few fundamental principles and policies, followed by an important chapter on what some of the states have done. Appendices give the Plymouth agreement of the Associated Industries of Massachusetts for organizing immigrant education in the industries, and the Americanization laws in Massachusetts, Ohio and California. Price, 15 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Regional Planning.**—Preliminary Survey of the City Planning Problems of the Cities of Allentown and Bethlehem and Neighboring Municipalities in Lehigh and Northampton Counties, Pennsylvania. 16 mimeographed quarto pp. Allentown Survey Bulletin No. 2, prepared by the Bureau of Municipalities of the Pennsylvania Department of Internal Affairs. (Apply to B. Antrim Haldeman, Chief, Division of City Planning and Municipal Engineering, State Bureau of Municipalities, Harrisburg, Pa.)



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**Teacher's Salaries and Salary Trends in 1923.**—A comprehensive and constructive study made by the Salary Committee of the National Education Association. The data were gathered in March and April, made available in preliminary form in May and in final form in July, 1923. 115 pp. Many tables. Chapter V, on "Principles and Standards Involved in the Making and Administration of Teachers' Salary Schedules," is particularly illuminating, based, as it is, on the position that "the fundamental issue in this whole matter is the kind of teaching service desired rather than what is to be the cost of that service." (Apply to Research Division, National Education Association, 1201 16th Street N. W., Washington, D. C.)

**A City Plan for Greater Cleveland.**—Report of the Committee on City Plan of the Cleveland Chamber of Commerce, submitted to the Board of Directors September 19, 1923. 23 pp. Showing the need of a plan for the city, and giving statements on the methods adopted by some other cities in making their plans. Presenting also a recommendation as to the methods of making the people see the urgency of this need and of securing their help in making the plan, adopting it for the future development of the city, and executing it. Including a statement of city planning projects undertaken by the Cleveland Chamber of Commerce. (Apply to the Committee.)

**Five Questions for American Education Week.**—The questions are: What are the weak spots in our public school system? What national defects result from the weak spots in our public school system? How may our public school system be strengthened? Can the nation afford an adequate school system? Do good schools pay?—American Education Week is November 18-24, 1923. These questions are presented in the Research Bulletin of the National Education Association for September, 1923. 56 pp. Tables. (Apply to the Association, 1201 Sixteenth Street N. W., Washington, D. C.)

**Juvenile-Court Standards.**—Report of the committee appointed by the Children's Bureau, August, 1921, to formulate juvenile-court standards, adopted by a conference held under the auspices of the Children's Bureau and the National Probation Association, Washington, D. C., May 18, 1923. Bureau Publication No. 121. 10 pp. The standards cover the following principles: that the court should have broad jurisdiction, and should also have a scientific understanding of each child; that treatment should be adapted to individual needs; and that the child should be kept in his own home and his own community, except when this is shown to be unwise. (Apply to the Government Printing Office.)

**Laboratory Aids to Physicians and Sanitarians.**—By John V. Mulcahy, Chief, Bureau of Bacteriology, New Jersey State Department of Health. In "Public Health News," the bulletin of the Department of Health of the State of New Jersey, July, 1923. 37 pp. Illustrated. Showing what laboratory examinations are made by the Bureau, what methods are used, how specimens should be taken, how they are examined, and what the findings indicate. (Apply to the Director of Health, State House, Trenton, N. J.)

**The Woman Home-Maker in the City.**—A study of statistics relating to married women in the city of Rochester, N. Y., at the census of 1920. By Bertha M. Nienburg. 1923. 49 pp. Tables. A comparison of the American-born and the foreign-born women home-makers in Rochester. Important information in connection with the measurement of the home worker's contribution to the economic life of the nation. (Apply to the Government Printing Office, Washington, D. C.)

**Rural Planning—The Social Aspects.**—U. S. Department of Agriculture Farmers' Bulletin No. 1325. May, 1923. 32 pp. Illustrated. By Wayne C. Nason, Junior Economist, Bureau of Agricultural Economics. An exhibit of actual examples of rural planning by rural people, showing their endeavor to create their own institutions, such as public grounds and recreation places and to conserve for permanent use the valuable existing features of rural life. (Apply to the U. S. Department of Agriculture, Washington, D. C.)

**The City Budget of Duluth, Minn.**—An analysis of the departmental requests for 1924, in "The Taxpayers' Business," issued by the Taxpayers' League, 213 Torrey Building, Duluth. 16 pp. (Apply to the League.)

**Ontario Hydro-Electric Power Commission.**—Fifteenth Annual Report, for the year ended October 31, 1922. Published 1923. XII + 688 pp. Views, tables, large map. (Apply to W. W. Pope, Secretary of the Commission, Toronto, Ont.)

**Commercial and Industrial Organizations of the United States.**—Revised and enlarged edition, March 1, 1923. Miscellaneous Series No. 99 of the Bureau of Foreign and Domestic Commerce, Washington, D. C. 225 pp. Containing a list of more than 11,000 organizations of local, state, national and international character, conveniently indexed to form a ready and convenient reference for the American business public. Price, 20 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Money Raising and Administrative Methods.**—A new bi-monthly section of "Better Times," a magazine devoted to social work, published in New York City. This new section will deal with such administrative problems of charitable and social agencies as publicity, money raising, purchasing, volunteer workers, accounting systems, and office management. The first issue was published October 1, 1923, and contains 32 pp. (Apply to "Better Times," 100 Gold Street, New York, N. Y.)

**Standardization of Signs and Signals in Traffic Regulation.**—Recommendations adopted by the Third Annual Convention of the International Police Conference held during May, 1923. 12 pp. With diagrams of signs. This pamphlet is one of the publications of the Conference. (Apply to the Secretary, Colonel R. Waldo, Special Deputy Police Commissioner, New York, N. Y.)

**County Libraries in Texas.**—Two pamphlets: "County Library Law of Texas," November, 1922, 12 pp.; "How to Secure a County Library," January, 1923, 26 pp. Excellent publicity for this worthy work. (Apply to the Texas State Library, Austin, Texas.)

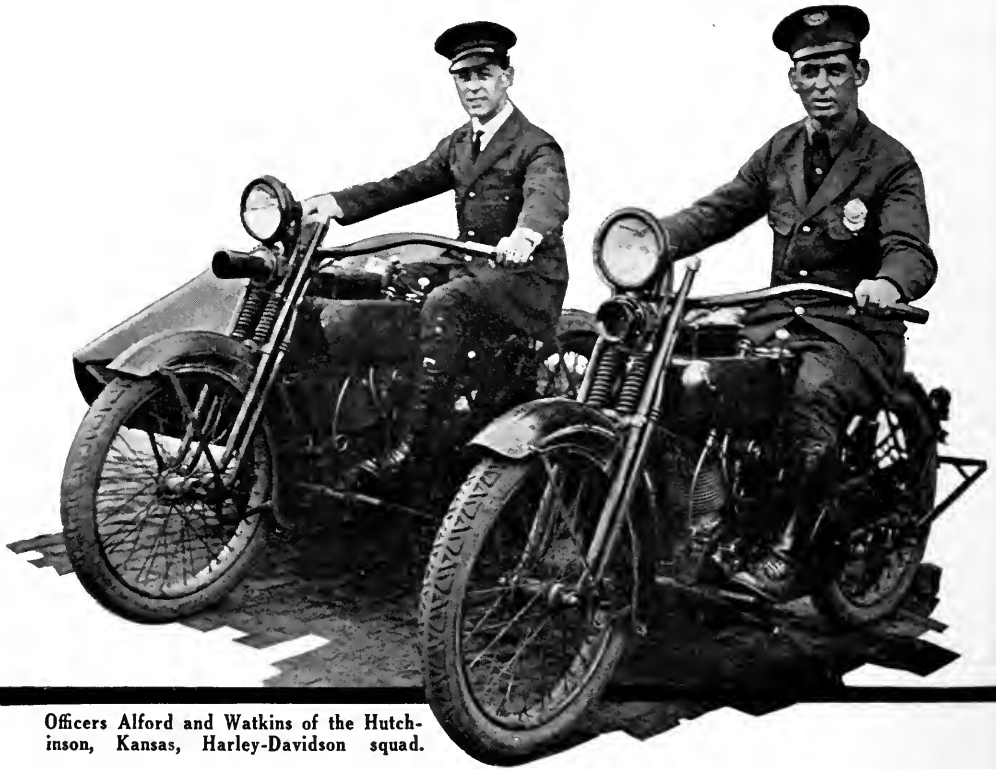
**Taxation and Retrenchment in New York State Towns and Counties.**—Report of the Special Joint Committee on Taxation and Retrenchment, submitted February 1, 1923. Legislative Document (1923) No. 55. 310 pp. Charts, tables. Pointing to an annual saving of some \$2,620,000 which can be made by the adoption of specific minor recommendations and an estimated saving of many millions from the adoption of the major suggestions. Mainly devoted to county, town and village government, but showing also the progress of New York State cities, and giving cost of government for New York State and its counties, towns, villages and cities, exclusive of education, over a five-year period. (Apply to Gerald G. Casey, Clerk of the Committee, Albany, N. Y.)

**Child Labor and the Welfare of Children in an Anthracite Coal-Mining District.**—Based upon an investigation by the Industrial Division of the Children's Bureau, for which Helen Wilson, a member of the staff, was responsible. Bureau Publication No. 106. VII + 94 pp. Views, charts and tables. Showing the great need of promoting the well-being of children in such a section—the Shenandoah district of Pennsylvania. Price, 10 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**How to Get Houses Built.**—An explanation of the British Housing Act of 1923. In the September, 1923, issue of "Garden Cities and Town Planning," 4 pp. Price of issue, 1 shilling net. This article is being reprinted as G. C. A. Leaflet No. 3: price 2d. each, 1s. 6d. per dozen, postpaid. (Apply to The Garden Cities and Town Planning Association, 3, Gray's Inn Place, Gray's Inn, London, W. C. 1, England.)

**First All-Philadelphia Conference on Social Work.**—The findings: a summary and abstract of the addresses and discussions. Published September 1, 1923. 61 pp. Giving in concise form the authoritative conclusions of modern social science and social practice. (Apply to J. Prentice Murphy, Chairman All-Philadelphia Conference Committee, Philadelphia, Pa.)

**Zone Ordinance for Toledo, Ohio.**—Supplement to the "Toledo City Journal" for September 15, 1923. 16 quarto pp. 2 maps enclosed. The ordinance passed the third reading September 10, 1923, and is effective October 10, 1923. (Apply to the "Toledo City Journal.")



Officers Alford and Watkins of the Hutchinson, Kansas, Harley-Davidson squad.

## Hutchinson (Kansas) Ought to Know

W. E. Long, Chief of Police of this progressive Kansas city, says: "We have used Harley-Davidsons for the past eight years and during that time we have tried other makes of motorcycles, but have found none to equal the Harley-Davidson for our work."

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3. Full-floating sidcar springs  
4. Olive Green finish  
maroon striped



**Ten Years of City Manager Government in Dayton, Ohio.**—Published by the Dayton Research Association, 409 Lowe Building, Dayton, Ohio. September, 1923. 16 pp. Information given under the following heads: What Is the City Manager Plan? Principal Features of Dayton's Government; What Dayton Had; Why Dayton Chose the City Manager Form; How Adoption of the Plan Was Secured; Is City Manager Government Democratic?; Form Not a Guarantee of Good Government; Efficient Citizenship Guarantee of Good Government. (Apply to the Association.)

**Salaries of Village Officials in Wisconsin, 1923.**—Compiled by Gladys D. West. Information Report No. 34 of the Municipal Information Bureau, University Extension Division, The University of Wisconsin. September, 1923. 12 mimeographed pp. From information secured from 296 villages in Illinois in reply to a questionnaire asking for the names of the village officials and the compensation which they receive. (Apply to Ford H. MacGregor, Chief, Municipal Information Bureau, Madison, Wis.)

**Inspection of Milk Supplies.**—By Ernest Kelly, in charge, market milk investigations, and C. S. Leete, market milk specialist, Dairy Division, Bureau of Animal Industry, Circular 276, U. S. Department of Agriculture. July, 1923. 37 pp. Illustrated. Authoritative, detailed information on methods and means of securing the proper production and handling of milk. Price, 10 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Prohibition and Its Enforcement.**—The September, 1923, issue of "The Annals" of the American Academy of Political and Social Science. Edited by T. Henry Walnut, Chairman of the Workmen's Compensation Board of Pennsylvania. IV + 325 pp. Containing 29 papers by authorities on various phases of this question, grouped under the following divisions: I. The Pros and Cons of Prohibition; II. Some Phases of the Effect of Prohibition; III. Problem of Enforcement; IV. World Struggle with Liquor. Price, \$1.00. (Apply to the American Academy of Political and Social Science, 39th Street and Woodland Avenue, Philadelphia, Pa.)

**Provision for the Education of Gifted Children in the United States.**—By Guy M. Whipple, Ph.D., Professor of Experimental Education, School of Education, University of Michigan. Supplement to September, 1923, issue of "Mother and Child," published by the American Child Health Association, 532 Seventeenth Street, Washington, D. C. An address at the National Conference of Social Work, Washington, D. C., May 22, 1923. 12 pp. Single copies, 6 cents; special quantity rates. (Apply to the publishers.)

**International Symposium on Rent Restriction Legislation.**—Bulletin of the International Garden Cities and Town Planning Federation, No. 1, July, 1923. 28 pp. Covering legislation applying March-June, 1923, in Belgium, Denmark, Finland, France, Germany, Great Britain, Holland, New York State, Norway, Roumania, Spain, and Sweden, the main principles of which are set forth under certain headings in the same order with reference to each of the countries dealt with. (Apply to the International Garden Cities and Town Planning Federation, 3, Gray's Inn Place, London, W. C. 1, England.)

**Municipal Health Department Practice.**—Report of the Committee on Municipal Health Department Practice of the American Public Health Association in cooperation with the United States Public Health Service. Public Health Bulletin No. 136 of the United States Public Service. July, 1923. IX + 468 pp. 1 diagram. This study has been made possible through the generosity of the Metropolitan Life Insurance Co. It deals only with the year 1919 or 1920, and covers the machinery of health administration in 83 cities of 100,000 or over with a few exceptions of cities close to the lower limit. The purpose of the work has been to discover the best procedures and to forward the simplification, standardization and development of municipal health department practice. Price, 50 cents. (Apply to the Superintendent of Documents, Government Printing Office, Washington, D. C.)

**Gas Rates.**—Comparative Schedule of Rates for Manufactured Gas in the United States for Cities of 15,000 Population and Over, compiled as of January 1, 1923. Published by American Utilities Bureau, 175 Fifth Avenue, New York, N. Y. The list is arranged according to population, thus permitting ready comparison of rates in cities of approximately the same size. Important information for mayors, city attorneys and other city officials. (Apply to William Wagner, Executive Secretary of the Bureau.)

**Baltimore, Md.**—Annual Report of the Department of Legislative Reference, for 1919-1922. (Apply to Horace E. Flack, Executive.)

**Bourne, Mass.**—Thirty-ninth Annual Report of the Town Officers, for 1922. (Apply to Ordello R. Swift, Town Clerk and Treasurer.)

**Chicago, Ill.**—Forty-seventh Annual Report of the Department of Public Works, for 1922. (Apply to Charles R. Francis, Commissioner of Public Works.)

**Chicago, Ill.**—Sixteenth Annual Report of the Board of Supervising Engineers, Chicago Traction, covering the fiscal year ended January 31, 1923. (Apply to Bion J. Arnold, Chairman of the Board.)

**Dayton, Ohio.**—Annual Report for 1922. (Apply to F. O. Eichelberger, City Manager.)

**Escanaba, Mich.**—First Annual Report, for year ending March 31, 1923. (Apply to Fred R. Harris, Manager.)

**Goderich, Ont.**—Auditor's Financial Statement, for 1922. (Apply to A. M. Robertson or H. R. Long, Auditors.)

**Honolulu, T. H.**—Report of the Mayor of the City and County for 1922. (Apply to John H. Wilson, Mayor.)

**Kewanee, Ill.**—Municipal Officers' Annual Reports for year ending April 30, 1923. (Apply to R. R. Haley, City Clerk.)

**Omaha, Nebr.**—Annual Report of the Department of Accounts and Finances, for 1922. (Apply to Dan B. Butler, Superintendent.)

**Philadelphia, Pa.**—Annual Report of the Bureau of Highways for 1922. (Apply to Fred C. Dunlap, Chief of the Bureau.)

**Philadelphia, Pa.**—Annual Report of the Bureau of Surveys, for 1922. (Apply to John A. Vogelstein, Chief Engineer and Surveyor.)

**Philadelphia, Pa.**—Annual Report of the Department of Wharves, Docks and Ferries for 1922. (Apply to George F. Sproule, Director of the Department.)

## On the Calendar of Conventions

NOVEMBER 12-16.—ATLANTA, GA.

*American Society for Municipal Improvements. Annual convention.* Secretary, Charles Carroll Brown, P. O. Box 284, St. Petersburg, Fla.

NOVEMBER 13-15.—WASHINGTON, D. C.

*City Managers' Association. Annual convention.* Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 15-16.—HAMILTON, ONT.

*Ontario Associated Boards of Trade and Chambers of Commerce. Annual meeting.* Secretary, T. Marshall, Toronto, Ont.

NOVEMBER 15-17.—WASHINGTON, D. C.

*National Municipal League. Annual meeting.* Secretary, H. W. Dodds, 261 Broadway, New York, N. Y.

DECEMBER 5-6.—WASHINGTON, D. C.

*National Civil Service Reform League. Annual meeting.* Secretary, H. W. Marsh, 8 West 40th Street, New York, N. Y.

DECEMBER 7-8.—LAKEWOOD, N. J.

*New Jersey Sanitary Association. Annual meeting.* Secretary, Edward Guion, M. D., Bureau of Health, City Hall, Atlantic City, N. J.

DECEMBER 27-29.—WASHINGTON, D. C.

*National Community Center Association. Annual conference.* Secretary, LeRoy E. Bowman, 503 Kent Hall, Columbia University, New York, N. Y.

JANUARY 13-19.—CHICAGO, ILL.

*American Road Builders' Association. Annual convention.* Secretary, Ethel A. Birchland, 37 West 39th Street, New York, N. Y.

**I**F imitation is the sincerest form of flattery, then the Kelly Kat is the most flattered truck tire that has ever been built.

The Kelly Kat was the first non-skid cushion truck tire adaptable to all sizes and types of commercial vehicles. Its popularity made it almost immediately the dominant factor in the truck tire field, and after six years it is still the leader.

This popularity has resulted in the development of similar types of tires by other manufacturers who have found themselves unable to compete against the Kelly Kat with ordinary solids.

However, to build a tire that *looks like* the Kelly Kat is one thing—to make one that will give the service of the Kelly Kat is another.

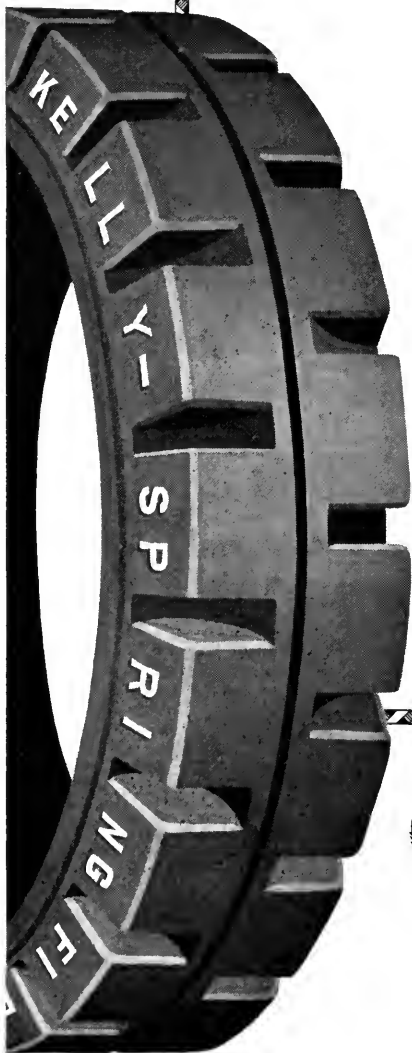
Remember there are no Caterpillar Tires but Kelly Kats—and

*It costs no more to  
buy a Kelly*

KELLY-SPRINGFIELD TIRE CO.

250 West 57th Street

New York, N. Y.



# News and Illustrations

Items of Interest to City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

## The Geophone in Water-Works Maintenance

The geophone is a non-electric instrument invented by the French during the war to detect through the earth the sapping and underground mining operations of the enemy. It was improved by United States engineers and more recently has been further improved by the engineers of the U. S. Bureau of Mines, and its use in special fields has been developed.

While the most extensive use of the geophone has probably been in mining, new uses for it are constantly being discovered. It has already been used successfully in locating underground watercourses and in locating leaks in water-mains. In one of the earliest tests the simplicity of the geophone for locating leaks was surprisingly demonstrated. Indications of a leak appeared on one of the busiest streets of a Pennsylvania city through which ran a large water-main. The geophone was called into use, and the leak was located under one of two parallel trolley car tracks. The engineer's office, however, declared that the instrument was not accurate because the water-main was under the other trolley car track, about 8 feet to one side of the spot located by the geophone expert. When excavation was made, however, it was discovered that the city engineer's office was mistaken and the water-main and the leak in it were both

found under the first track as originally located by the geophone.

The water circulating in the ordinary city main can be heard with the geophones when they are placed on the surface 10 to 12 feet above the pipe. In the business district of Pittsburgh one leak was located in a few minutes, although the water department had been trying to find it for two weeks. The leak could be heard from the surface from any point within a circle 60 feet in diameter, and it was located in the joint of a "T" connecting a 10-inch with a 15-inch main. The geophones were also successfully used to locate a leak in a 1-inch pipe serving a residence. These instruments are made by the Globe Phone Manufacturing Company, Reading, Mass.

## A New Idea for Showing Street Names

In a recent blue-print published by the Tropical Paint and Oil Company, Cleveland, Ohio, copies of which may be secured free on request, this company suggests marking street names on the perpendicular edge of the curb. The lettering should be in white, red or orange, on a black background in the case of the white or orange, and on a white background in the case of the red, so that it stands out plainly. Such a marking makes it possible for the driver of an automobile or truck to read the street names without lifting his eyes from the street, which is necessary when street names are shown on the corners of buildings or on poles.

The blue-print mentioned above contains many other suggestions for traffic regulation, including the designation of parking spaces, crosswalks, etc. Copies of this print are available for municipal officials, for organizations interested in the effective control of traffic and for individuals studying the subject with an idea of improving present methods.

## Consulting Engineers Move Offices

Black, McKenney & Stewart, consulting engineers in municipal, highway, river, harbor, port and terminal engineering, announce the removal of their offices to 1653 Pennsylvania Avenue, N. W., Washington, D. C.



A GEOPHONE, AN INSTRUMENT FOR LOCATING LEAKS IN WATER-MAINS FROM THE SURFACE, IN CARRYING CASE

## IS YOUR CITY PLANNING MUNICIPAL MOVIES?

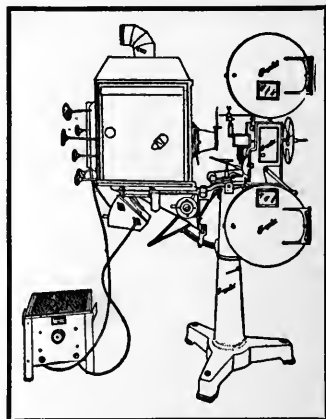
If so, it will pay you to inquire into the merits of the

*Simplex*

Projector

*"The world's finest motion picture machine"*

THE BEST THEATRES EVERYWHERE  
ARE SIMPLEX EQUIPPED



GO TO YOUR NEAREST THEATRE AND  
SEE THE SIMPLEX IN OPERATION

*Then write us for catalog "D"*

**THE PRECISION MACHINE CO. INC.**

317 East 34th St... New York

## Guiding a city's Traffic *with Paint*

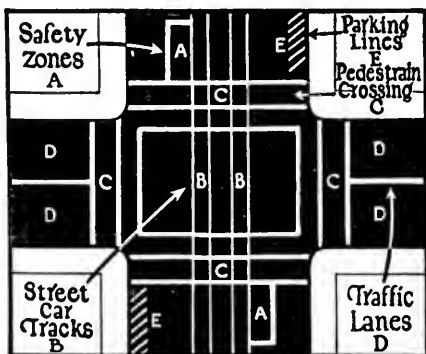


Diagram of an Intersection



The most modern way to relieve traffic congestion is to make it conform to the "WHITE LINE OF THE LAW." The simple practice of marking white lines on the street paving has proven most effective in speeding up traffic in an orderly manner.

This is a habit forming process for the driving public, which is of great help to the police and insures greater protection to pedestrians. The causes of accidents and delay are practically eliminated.

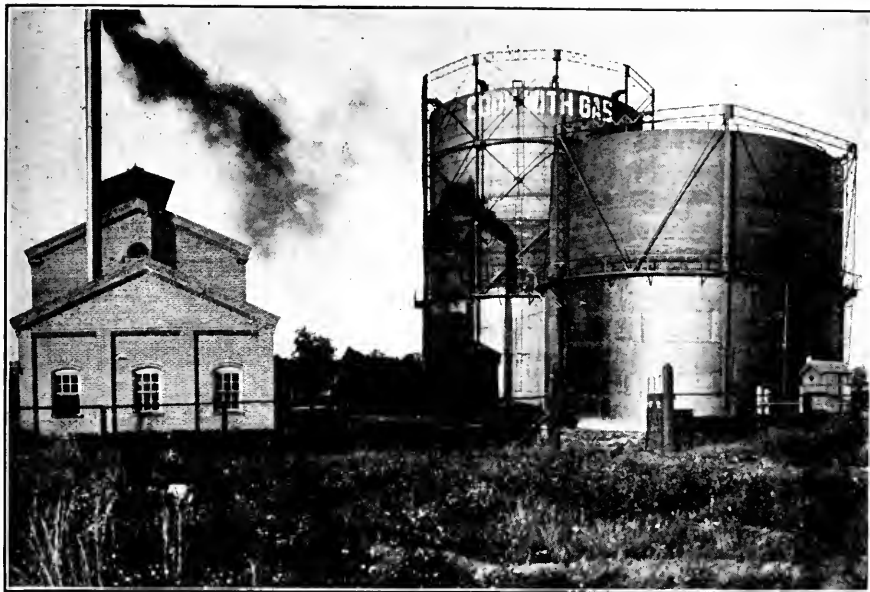
SEWALL'S WHITE LINE STREET AND TRAFFIC PAINT finds great favor with civic and private authorities who are solving traffic and parking problems. It is quick-drying and wear-resisting under all atmospheric conditions.

Our descriptive literature explains its many uses. Write us.

**Sewall Paint & Glass Company**

KANSAS CITY, MO.

DALLAS, TEXAS.



GENERAL VIEW OF THE ROCKY MOUNT, N. C., MUNICIPAL GAS WORKS

### Painting a Municipal Gas Plant

In the September issue of *THE AMERICAN CITY* appeared an article describing the municipal gas plant of Rocky Mount, N. C. The illustration reproduced above through the courtesy of the Joseph Dixon Crucible Company, Jersey City, N. J., shows this plant. The gas holders, smoke-stacks and other metal work were painted in 1918 with Dixon's Silica-Graphite paint.

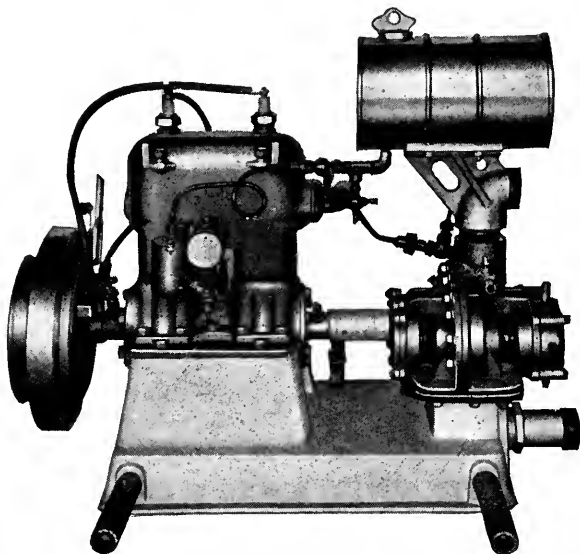
### Small Communities Can Use Forest Fire-Fighting Equipment to Advantage

Until quite recently the only means of fighting forest fires was with brooms and gunny sacks and by ditching, backfiring and other expensive, slow and tedious methods. A large portion of the money which has been appropriated in the last two years for fighting forest fires, however, has been invested in light, durable forest fire pumping engines. The smallest of these outfits with a full gasoline tank weighs only 70 pounds and yet pumps 20 gallons per minute at 80 pounds pump pressure. According to the Minnesota State Forestry Department, which is using a large number of these machines, one of the machines replaces 30 men in effectiveness in fighting forest fires.

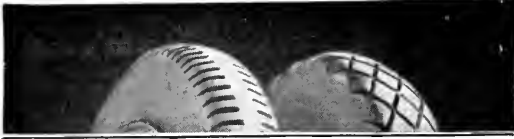
The problem of fighting a forest fire is almost identical with the small community fire problem. The difficulties may be summed up as, first, a limited water-supply, and second, the

difficulty of speedy and easy transportation. There are other minor points to overcome, but these two present the most outstanding features of the problem.

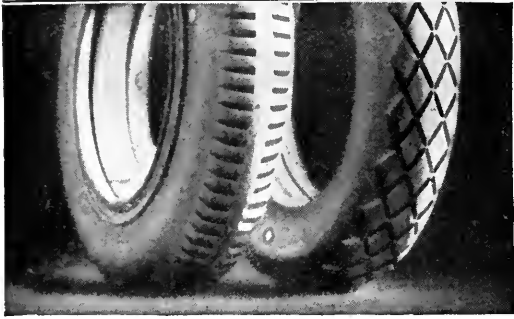
Users of this equipment have reported that these small machines have pumped water successfully through 2,500-foot lines of 1½-inch hose, the stream at the end of the nozzle reaching 30 or 40 feet. Since the one-man outfit weighs only 70 pounds, it is easily transportable. The two-man outfit, weighing less than 130



TWO-MAN PORTABLE PUMPER FOR SMALL-TOWN FIRE DEPARTMENTS



**Constant, Economical Service**

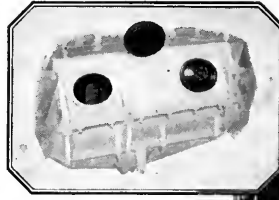


Wherever Goodyear Cord Truck Tires are used in municipal hauling they demonstrate their ability to reduce costs and improve service. There are special Goodyear Tires for special needs — Goodyear Cushions and Goodyear All-Weather Tread Solids. For assistance in determining the most practical tire for any work, call the nearest Goodyear Branch. Or, if more convenient, write direct to Goodyear, Akron, Ohio, or Los Angeles, California.

*Goodyear Means Good Wear*

**GOODYEAR**

Copyright 1923, by The Goodyear Tire & Rubber Co., Inc.



Send for illustrated and descriptive literature on all exclusive Mack features.



**Exclusive Feature No. 10**

## Crankcase Inspection Ports

"By a simple turn of the hand-operated clamp and wing nut, the marine type inspection plates may be removed, giving immediate access to the connecting rods and main bearings. The oil level gauge may be visually checked by observing the depth of oil through the open ports.

"The engine may be run slowly with ports open for further inspection.

"Instant accessibility to the very vitals of a gasoline engine is a feature that can only be fully appreciated by those responsible for its regular inspection and servicing."

**INTERNATIONAL  
MOTOR COMPANY**  
25 Broadway New York

Branches owned by this company operate under the titles of: "MACK MOTOR TRUCK COMPANY" and "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION."

**PERFORMANCE COUNTS**

pounds, can be very easily carried by two men. One of the two-man outfits has been shipped to the Chief of the Fire Department of Amsterdam, Holland, who has mounted the unit on the side-car of a motor-cycle as a speedy first-call auxiliary. Some small communities in the United States have already taken advantage of the fire protection afforded by these small units made by the Northern Fire Apparatus Company, Minneapolis, Minn.

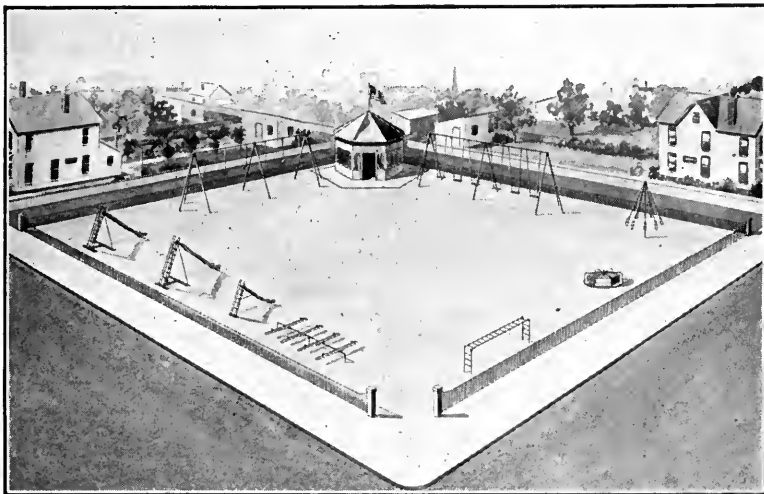
### Creating a Playground

It is not difficult to realize the tremendous possibilities for good in the playground, but it is not always easy to provide the necessary

Company, Springfield, Ohio, a small playground layout such as illustrated may consist of a few well-chosen pieces of apparatus which may later be added to as desired.

### Pittsburgh Meter Company to Move

A new 5-story building located on 2½ acres of ground is now nearing completion in the Brushton District of Pittsburgh, Pa., for the Pittsburgh Meter Company. The building measures 80 x 300 feet and has approximately 150,000 square feet of floor space. It is well lighted and thoroughly ventilated and equipped



**SUGGESTED LAYOUT FOR WELL-EQUIPPED PLAYGROUND**

money to put these possibilities into practise. Perhaps public funds are not available—school appropriations have a habit of becoming exhausted before all the needs are met. The problem then falls frequently on individual enterprise.

The situation may present difficulties, but it is not impossible of relief. Playgrounds have literally "sold themselves" to the public. Most people recognize their value and are willing to contribute to their maintenance. This is an encouraging factor in the situation. Teachers and school officials have only to take advantage of this favorable attitude on the part of the public. There are many ways in which funds have been raised, and raised in substantial quantities. Public officials who really study the situation and are determined to raise money are seldom disappointed; in fact, the results frequently surpass the most enthusiastic expectations.

Fully equipped playgrounds do not as a rule spring into existence over night. They are the result of careful planning and well-informed buying. They develop slowly, keeping pace with the need. They experience a steady, healthy growth.

According to the Everwear Manufacturing

with the most modern tools and machinery. At present the offices of the company will occupy the front section of the first and second floors, facing Susquehanna Street, which parallels the Pennsylvania Railroad at this point.

Special thought is being given the problem of continuing service to customers while the move is being made from the old to the new quarters. Stocks of water-meters and gas-meters will be provided at the district office warehouses of the company in sufficient quantities to insure of quick shipment of orders during the period of transmission, and large stocks of finished meters and parts will be available at both East Pittsburgh and the new location. The new address of the company will be 7800 Susquehanna Street, Pittsburgh, Pa., for mail, telegrams and express. The freight address will be Pennsylvania Railroad, Wilkensburg, Pa., the company having a private siding from the Pennsylvania Railroad.

### Data on Heenan-Froude Refuse Destructors

An instructive booklet on the high temperature incineration of municipal refuse has recently been published by Jones & Very, Inc., Engineers, 60 Wall Street, New York City.





North High Street, Cedar to Fifth Ave.,  
Columbus, O., paved with Trinidad Lake  
Asphalt in 1921.

## Nature made -- world old *and ages seasoned*

Exposed for centuries to the rigors of tropic weather, TRINIDAD LAKE ASPHALT doesn't melt under blazing sun—doesn't crack under freezing cold—doesn't disintegrate under soaking rains.

That's why Trinidad Lake Asphalt pavements—in *all parts of the world*—are rated FIRST in long life and FIRST in low cost per year of service.

We have some interesting data regarding this remarkable material. Write for it.

### THE BARBER ASPHALT COMPANY

PHILADELPHIA

New York

Chicago

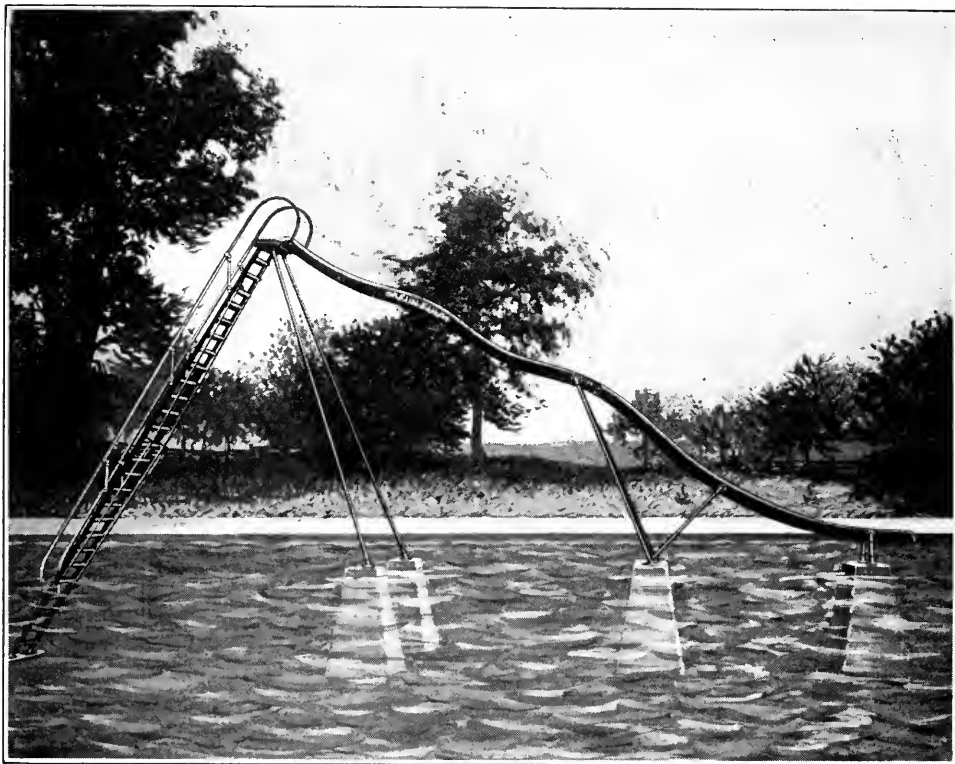
Pittsburgh

St. Louis

Kansas City

San Francisco

# TRINIDAD LAKE ASPHALT



AN OUTDOOR WATER SLIDE OF THE WAVE TYPE, SHOWING FOUNDATIONS

### Water Slides for Indoor and Outdoor Use

Water slides which may be set on piers or piling for outdoor use and at the edge of indoor pools are made by the Hill-Standard Company, Anderson, Ind., and are used in many municipal swimming pools.

These slides are made entirely of steel and malleable iron except for the chute side-rails and stair-treads, which are made of high-grade rock maple, hand-finished and splinter-proof. The chute bedways are of Armco rust-resisting galvanized iron. The slides are furnished with chutes of two types—the straight type with a retarding curve at the lower end, and the wave type with one or more bumps as the length may permit.

The best practise in the use of these chutes is to have them half as high as the chute is long; thus a 16-foot chute would require a stairway and platform 8 feet in height. Most of the slides are for use in water 3 to 4 feet deep; this has proved best for general public use, as deeper water is not safe for children and adults who cannot swim.

To use these successfully, the chutes must be flushed with water. Various means are used, depending upon local conditions and the water-supply.

### A New V-Type Snow-Plow for Heavy Tractors

The new Champion V-type snow-plow which has been developed as the result of many years' practical experience with mechanical appliances by the Good Roads Machinery Company, Kennett Square, Pa., is of the general type used by railroads in keeping snow from their tracks and rights of way. Through the use of wood and steel construction, a strong, rigid, easily repaired, shock-absorbing plow of light weight is obtained. It is designed for use in deep snow and must be used with heavy tractors having sufficient power to push it. Under proper conditions it may be used to advantage with two standard 5-ton auto trucks, properly timed for operation together, one pushing behind the other.

The plow consists of an inclined platform carried on rollers and sleds with a V-type moldboard mounted on it, and a push frame arranged for attaching to the tractor. The plow is attached to move snow with the least possible effort. The adhesion of snow to itself and to the ground makes it necessary to exert tremendous force to move it sideways or forward along the ground. It is due to this fact that the ordinary V-plow has not always given satisfactory results. The new

# Open to Traffic in 10 Days!

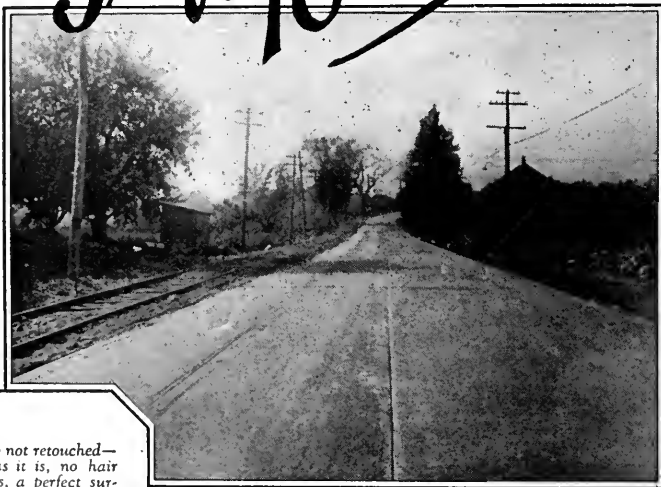


Photo not retouched—just as it is, no hair cracks, a perfect surface cured by Solvay Calcium Chloride.

**T**HE concrete on the road pictured above was placed October 5th and 6th and the road was opened to traffic on October 16th!

State and County Engineers, wherever Calcium Chloride curing has been used, are unanimous in their commendation. Results are certain with Solvay because it automatically proceeds with the curing. There is no worry concerning daily sprinkling, no expense for inspectors. Once Solvay is applied the curing goes ahead and you quickly have the road in use, a strong perfectly cured concrete highway.

In addition to curing concrete, Calcium Chloride, when mixed with concrete gauging water, provides four very desirable conditions:

1. Accelerates the initial and final set and increases the early tensile strength.
2. Gives greater plasticity and workability.
3. Increases density—waterproofs.
4. Increases freezing resistance—freezeproof.

It is for use in all concrete work, and for use in mortar, in setting brick. Its efficiency is not impaired by the weather. The action of Solvay enables brick work and concreting to proceed at exceptionally low temperatures, as it lowers the freezing point of water, at the same time hastening the action.

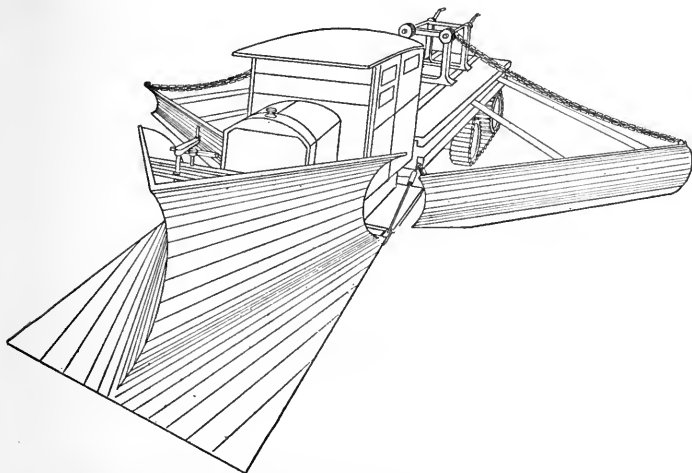
## For CONCRETE CURING

# *use* SOLVAY

*Free Running*  
Calcium Chloride

ACCELERATES, HARDENS, FREEZEPROOFS—WATERPROOFS CONCRETE  
Shipped in 375 lb. non-returnable drums or easy-to-handle 100 lb. moisture-proof bags from 50 convenient distribution points. Write for literature.

**SEMET-SOLVAY COMPANY, Dept. J., Syracuse, N. Y.**



**HEAVY TRACTOR EQUIPPED WITH V-TYPE PLOW AND SIDE WINGS**

plow lifts the snow on its inclined platform, thus breaking the resisting force of the snow, and rolls it upwards and sideways with a minimum of effort. This eliminates the wedging and packing that is common with ordinary V-plows, but permits the use of this plow with a 10-ton tractor in handling exceptionally heavy snows even under bad drifted conditions.

The manufacturer recommends that the plow be put in operation while the snow is falling and after 6 or 8 inches of snow has accumulated, although in many instances plowing cannot be started until the storm is over. The first cut should be taken in the middle of the road and then succeeding cuts made to widen the cleared space until the full width of the roadway is cleared. These additional cuts may be easily made with the new Champion plow without fear of undue side-thrust because of the lifting action of the plow. It is advisable, in fact, almost necessary, that the full width of the road be cleaned after the first snow and the windrow of snow pushed as far as possible to the side, as succeeding storms will gradually narrow the cleared space. In ordinary plowing the operator can sit in the cab of the tractor and assist in steering the plow by means of a tiller rope or chain attached to the steering lever. In heavy plowing and where deep drifts are encountered, it is best to have the operator ride on the platform inside the plow, as he can better direct and guide the plow and tractor from that position.

The plow is mounted on three rollers, two in the rear and one on the front end. The rear rollers are fixed in place, and on the same axles are mounted narrow runners. The rollers are absolutely necessary for moving over hard state roads. The sleds are necessary on rough country roads and help prevent damage in the event of the outfit's being driven on the road. The front roller is mounted as a castor and is used to help in steering the plow. The roller

is spring-supported and so arranged as to raise and lower the front end of the plow. It can be adjusted to let the plow rest on the road entirely. Four shoes or bearing plates and a replaceable cutting edge are used to take the wear when the plow is used with the front roller raised so that the edge rests on the surface of the road. The use of a thrust ball bearing in the roller support and a T-tire shrunk on the face of the roller makes the steering very easy. These features facilitate moving the plow from place to place and also regulate the depth of snow to be left on the road.

Widening wings and a lifting device for use with the plow when attached to

Linn tractors, may be secured. The plow itself clears a path 8 feet wide, and with the wings a path 16 feet wide may be made in light snow. When in heavy snows, the top of the windrow can be pushed to one side, thus permitting the second cut of the plow to readily clear a wider path. The wings are attached to the tractor frame by means of hinge castings and can be raised to permit passing through narrow bridges or to pass vehicles. These wings can be used only with the Linn tractor or machines of a similar type.

### **New P & H Representatives**

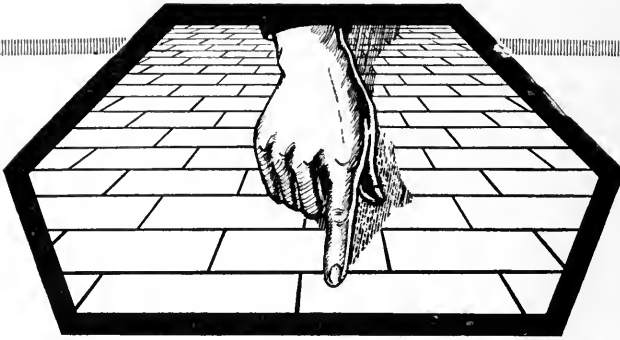
Pawling & Harnischfeger Company, Milwaukee, Wis., has announced the appointment of N. B. Norris as manager of the New Orleans office at 938 Whitney-Central Building, and also the opening of a new office at 1124 Book Building, Detroit, Mich., with James Van Buskirk in charge.

### **Truscon Moves Michigan Office**

The Truscon Steel Company has announced that its Detroit, Mich., office has been removed to the second floor of 615 Wayne Street. The office will house the complete service organization and engineering department and will furnish information, estimates and details on all Truscon steel products, including reinforcing steel, metal lath, steel windows, steel joists, highway reinforcing, standard buildings, inserts, foundry flasks, platforms and pressed steel parts.

### **School Motor Busses**

The advent of the motor vehicle has simplified the problem of gathering pupils for consolidated schools over a wide territory and transporting them quickly and safely to the new, larger consolidated schools, which are modern and sanitary and are provided with



## Salvage Value—100%

WHEN Duval County, Florida, thirteen years ago, paved the Pablo Beach Road with brick the officials proved themselves far-sighted care-takers of the public funds.

After the wear and tear of thirteen years had finally battered the surface until it was no longer perfectly smooth, the officials of 1923 discovered an interesting truth—*that the brick bought in 1910 was worth more in 1923 than the county had originally paid for it.*

Lifting the bricks out of their places, exposing the base, they found and corrected the cause of the trouble. Regrading and in part rebuilding the base, they relaid the brick of 1910, applied the asphalt filler, and sent the bricks back to a generation more of service.

A new roadway with virtually no cost for surfacing material—(only a few new bricks were purchased)!

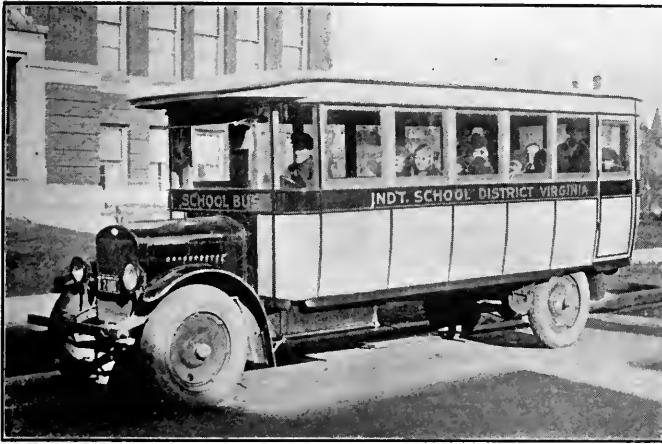
Have you ever looked at the bricks in the pavements in your community from that angle?—do you realize that they have a salvage value that may today be greater than their first cost—and that the brick pavements you lay today will have a similar asset value a generation from now?

Pave with brick because brick outlasts the bonds—pave with brick because upkeep is least through the long years of enduring service which brick renders. Pave with brick and protect the public funds.

VITRIFIED  
**Brick**  
PAVEMENTS

NATIONAL PAVING BRICK  
MANUFACTURERS ASSOCIATION  
ENGINEERS BLDG. CLEVELAND, OHIO





**A GMC SCHOOL BUS FOR THE INDEPENDENT SCHOOL DISTRICT OF VIRGINIA, MINN.**

sufficiently able teachers to conduct a graded school where pupils can be fitted to take up higher education or the duties of life, fully equipped. To properly safeguard the lives of the children, the vehicles used for transportation must be reliable. They must be strong, to stand the constant day-by-day service and the extra loads they are sometimes required to carry. No school board that considers the responsibility it assumes can afford to provide light-weight, cheaply constructed busses to carry its children to school.

The GMC one-ton chassis, made by the General Motors Truck Company, Pontiac, Mich., is commonly used in school transportation. This chassis is the same type, but greatly improved, as the one used by the U. S. Army for ambulance work in France and Italy during the war, and was adopted by the War Department as standard for all work in the one-ton class.

### **Link-Belt Acquires Meese & Gottfried Company**

The Link-Belt Company, Chicago, Ill., through its President, Charles Piez, has announced the purchase of the Meese & Gottfried Company of San Francisco, Los Angeles, Seattle, and Portland. For the past ten years the Link-Belt Company has been distributing its products on the west coast through its subsidiaries, the Link-Belt Northwest Company of Seattle and the Link-Belt Pacific Company of San Francisco. The improvement in distributing facilities effected by the consolidation and the additional manufacturing facilities acquired should give the rapidly growing industry of the Pacific Coast highly economical and efficient service.

Meese & Gottfried Company and its predecessors have been manufacturers of power transmission machinery and distributors of conveying and transmission machinery on the coast for more than 40 years. It is the intention of the new owners to add to the facilities and enlarge present stocks so that prompter

service to customers may be insured.

The new organization will be known as the Link-Belt Meese & Gottfried Company, with headquarters at San Francisco and with the following officers: Charles Piez, Chairman of the Board; B. A. Gayman, President; Harold H. Clark, Vice-President and Sales Manager; Leslie W. Shirley, Treasurer; Richard W. Yerkes, Secretary. The offices, plants and warehouses of the new company are as follows: 19th and Harrison Streets, San Francisco, Calif.; 400 East Third Street, Los Angeles, Calif.; 820 First Avenue, South, Seattle, Wash., and 67 Front

Street, Portland, Ore.

### **A \$2,500,000 Pipe Line Project in Portland, Ore.**

The contract for the construction of the third Bull Run pipe line in Portland, Ore., has been awarded to the Willamette Iron and Steel Works of that city by the City Council at a price of \$2,571,403.65. The award was made by the Council in conformity with a report and recommendation made by Commissioner Mann in charge of the Water Bureau, and Fred M. Randlett, Chief Engineer.

The Lock-Bar steel pipe to be used in the construction of the Bull Run pipe line is to be manufactured in Portland by the Willamette Iron and Steel Works in accordance with arrangements made with the East Jersey Pipe Company, 7 Dey Street, New York City. Immediate extensions in the plant of the Willamette Company, costing in excess of \$100,000, are to be made in order to turn out the Lock-Bar pipe, according to A. G. Labbe, President, and Harry P. Humphrey, Sales Manager of the Portland concern. In spite of the efficiency of Lock-Bar pipe, freight rates between the east coast and the west have heretofore kept this pipe out of the Pacific Coast market. Under the arrangement noted above, the raw steel will be shipped to Portland by boat, then fabricated in the enlarged Portland plant and shipped to Pacific Coast points by either boat or rail.

The Willamette Company has fabricated and supplied the pipe used in the flow lines and penstocks on the Oak Grove project that is being constructed for the Portland Railway, Light and Power Company, in addition to many smaller jobs. The company has also furnished the pipe and penstocks used for the power-plant at Nisqually, Wash., for the city of Tacoma, and material for the power-plant at Cedar Falls, Wash., constructed for the city of Seattle.



# General Motors Trucks

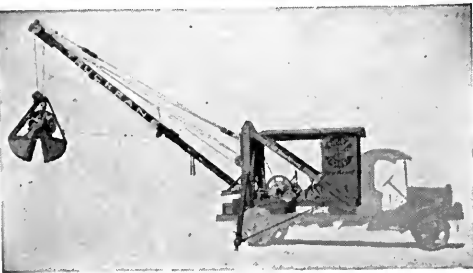
Because G.M.C. Trucks effect such big savings in hauling costs, many Municipal, County and State Governments prefer them to any other make:

## GENERAL MOTORS TRUCK COMPANY

*Division of General Motors Corporation*

**Pontiac, Michigan**

DEALERS AND SERVICE STATIONS IN MOST COMMUNITIES



## TruckKraNE

THE traveling speed and working capacity of the TruckKraNE have made this sturdy Byers outfit deservedly popular in municipal work all over the country.

Any loose material can be handled efficiently and economically by the TruckKraNE. As a rapid-fire snow remover, it has saved many costly traffic tie-ups during the winter season.

It can be mounted on any five-ton motor truck chassis measuring at least 9 feet 6 inches from back of driver's seat to center of rear axle. Has its own power plant.

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**THE BYERS MACHINE COMPANY**

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Our new Catalog (containing complete data on the reinforcement of all plastic materials), and the booklet by H. Eltinge Breed on "Wire Fabric Reinforcement in Highway Design" are now available to Contractors, Engineers and Architects.

Write for one or both of these books—free.

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WORLD'S LARGEST MANUFACTURERS OF WELDED STEEL FABRIC



Vol. XXIX  
No. 6

# The American City Magazine

DECEMBER  
1923

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## The Obligation of Local Officials for Prohibition Enforcement

By R. A. Haynes

Federal Prohibition Commissioner

THE obligation of the nation, the states, and the municipalities to enforce the Eighteenth Amendment is of the highest character known to our form of government.

Our governments are based upon compact. The constitutions of the national and state governments are the embodiment of the principles by which the people have declared they shall be governed. These principles were meant to be observed, not ignored. The Eighteenth Amendment represented a change in the organic law of the United States, made in the manner provided in that instrument for the adoption of amendments. It has been declared valid by the Supreme Court.

The Constitution of the United States, Article VI, Clause 2, declares that "the Constitution and the laws of the United States made in pursuance thereof, shall be the supreme law of the land," and Clause 3 requires "that all executive and judicial

officers, both of the United States and of the several states, shall be bound by oath or affirmation to support the Constitution."

The United States Supreme Court in sustaining the validity of the Eighteenth Amendment in the national prohibition cases, 253 U. S. 350, 64 L. Ed. 946, declared that "that part of the prohibition amendment to the Federal Constitution which embodies the prohibition is operative throughout the entire territorial limits of the United States, binds all legislative bodies, courts, public officers and individuals within those limits, and that it shall be respected and given effect the same as other provisions of the instrument," and further said that "the concurrent

power to enforce the article by appropriate legislation does not enable Congress or the several states to defeat or thwart the prohibition but only to enforce it by appropriate means."

The states in the adoption of the Eight-

### The Following Letter from the Editor to President Coolidge

brought the special statement to the readers of THE AMERICAN CITY MAGAZINE, by the Federal Prohibition Commissioner, which appears on this page.

"In your address to the Governors on October 20 we find several references to the need for more effective cooperation by state and local officials in upholding the Eighteenth Amendment. We are under the impression, however, that there is no definite and general understanding on the part of municipal officials and police departments as to their legal obligation to enforce Federal statutes.

"In the interest of law enforcement in the cities, towns and villages throughout the United States, we should greatly appreciate the privilege of publishing a statement by you as to just how such legal obligation is incurred by municipal governments, with special reference to the Volstead Act, in states where such enforcement is not required by state laws; and if the governing body of the municipality is unsympathetic to the Volstead Act, what power the Federal Government has to compel action by the state or local police officers."

teenth Amendment reserved to themselves the right to exercise their police power for its enforcement by providing that "Congress and the several states shall have concurrent power to enforce this article by appropriate legislation." It is the duty of every state and also of every municipality, within the scope of its charter power, to exert this authority to enforce the prohibitions of the amendment. For any state or subdivision thereof to withhold the aid of its officers in the enforcement of this principle of the Constitution is to that extent to attempt to defeat or thwart the constitutional provision.

Abraham Lincoln said of the duty to discharge constitutional obligations, in his debate with Senator Douglas at Jonesboro, Ill., on September 15, 1858:

"There can be nothing in the words 'support the Constitution,' if you may run counter to it by refusing support to any right established under the Constitution."

There may be no legal method by which the Federal Government may compel state and municipal officers to enforce the Act of Congress enacted for the enforcement of the Eighteenth Amendment, but the absence of means of legal compulsion does not absolve the state or subdivision thereof

from the obligation assumed by the adoption of the amendment. The failure of any state or subdivision thereof to discharge its constitutional obligation is no justification for any other unit of government to decline to discharge its duties under the Constitution.

There are certain obligations imposed upon Congress by the Constitution, also certain obligations imposed upon the President. There is no way by which a state or any subdivision thereof could compel either Congress or the President to discharge these duties should either of them decline to do so. The obligations are none the less binding because of this fact. The assumption that any unit or department of government may disregard its constitutional obligation, growing out of a solemn compact of the highest dignity, strikes at the very foundation of constitutional government. If one constitutional provision may be disregarded, other provisions may be likewise; the result would be chaos and anarchy instead of the enjoyment of life, liberty and the right of pursuit of happiness which the Constitution of the United States declares this government to have been established to promote.

## Big Bond Issues Voted for Public Improvements

**A**S the result of votes cast at the recent November elections a number of cities have been authorized to issue bonds providing for extensive programs of municipal improvements. The largest of these bond issues is the one carried by the citizens of Philadelphia, amounting to \$71,000,000. The loan is provided for in two bills, one for a loan of \$3,750,000 to be made in 15-year bonds to cover short-life works, and the other for \$67,250,000 to be made in 50-year bonds to provide for works of permanent character. The items covered in the 15-year loan are: street and road paving and repairing, \$2,400,000; extension of police signal system, etc., \$440,000; refund of money appropriated from current funds for improvement to the Institution for the Feeble-minded, \$160,000; toward the construction of surface railway, \$750,000. A list of the principal items covered by the 50-year loan follows:

Completion of Delaware River Bridge....	\$5,623,000
Broad Street subway, with Ridge Avenue, Eighth, Walnut, and Chestnut Street subway, and Woodland Avenue elevated	15,000,000
Surface car subway in Chestnut Street, connecting to Delaware River Bridge....	10,000,000
Harbor improvements .....	2,000,000
Sewage disposal plant .....	9,000,000
Water-supply system .....	6,000,000
Street improvements .....	500,000
Free library buildings .....	1,000,000

Construction of sewers .....	3,300,000
Construction of city bridges.....	500,000
Construction of City Hall annex.....	2,000,000
High-pressure fire service extensions.....	200,000
Art museum construction .....	2,000,000
Street damages, etc. ....	5,077,000
Buildings, Dept. of Welfare.....	500,000
Buildings, Dept. of Public Health.....	2,500,000

The voters of Chicago and Cook County approved the issuance of bonds by the city of Chicago in the sum of \$2,650,000 for the construction of the proposed La Salle Street bridge, and authorized the West Chicago Park Commissioners to issue bonds in the sum of \$2,000,000 for establishing, enlarging and improving parks and boulevards under their control. The proposition that the city of Chicago be authorized to levy an additional tax of 25 cents per \$100 assessed value of property for school building purposes and the purchase of school sites was also approved.

In Detroit several important charter amendments were adopted. One of these provides for the construction of a subway system, the amendment allowing the city to bond up to 4 per cent of its assessed valuation for rapid-transit purposes. Another increases the bonding limits of the city, the total bonded indebtedness not to exceed 9 per cent of the assessed valuation.

# Growth of the Seattle Municipal Light and Power System

With an Outline of the Lighting and Distribution Systems

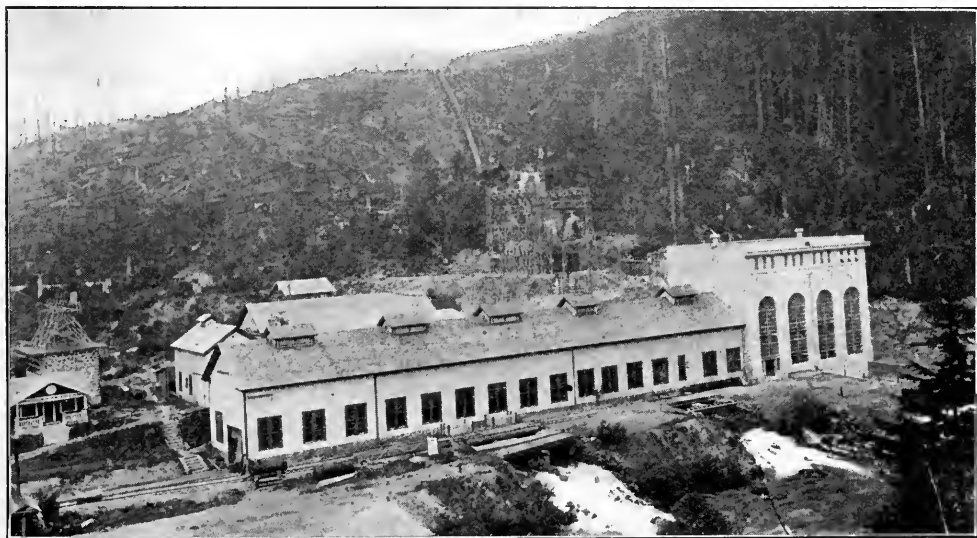
By J. D. Ross

Superintendent of Lighting, Seattle, Wash.

SINCE the time of the first charter of the city of Seattle, in 1869, the citizens have shown a disposition to favor municipal ownership of public utilities. Each charter up to and including the present one, adopted in 1896, gives authority for the city to own and to operate a lighting system. The city lighting system began as a branch of the water system, which was acquired by the city in January, 1901.

## The First Cedar River Plant

Plans were drawn for the first Cedar River power-plant in 1901, and in March, 1902, the first bond issue of \$590,000 was ratified by the citizens to provide for the construction of a timber dam at Cedar Lake with a wood-stave pipe  $3\frac{1}{2}$  miles long to the power-house below the falls and the  $36\frac{1}{2}$ -mile transmission line to Seattle, with a substation at the city end. The capacity

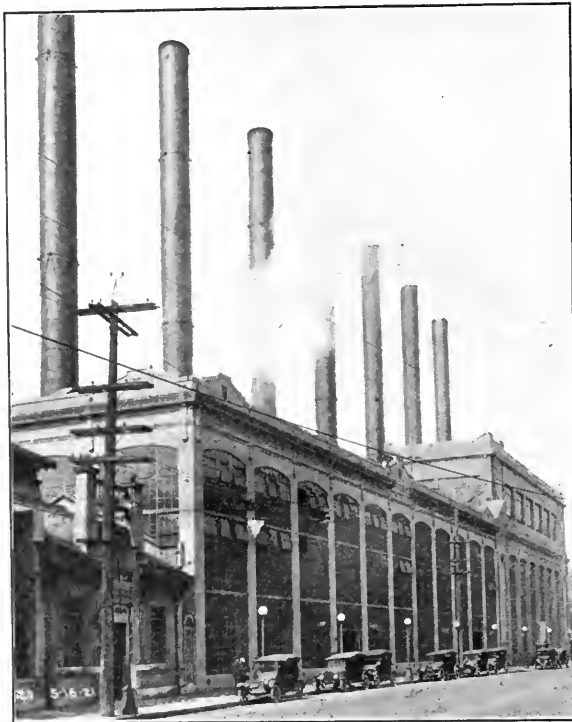


GENERAL VIEW OF CEDAR FALLS HYDROELECTRIC GENERATING STATION OF SEATTLE MUNICIPAL SYSTEM, SHOWING OUTDOOR TRANSFORMERS AND WOOD STAVE PIPE LINE

The water-supply of Seattle is taken from Cedar River and, before the water-supply lines were constructed, it had been suggested that power from the water system might be used to light the city, although the idea of transmitting power from Cedar River to Seattle had to await the development of long-distance transmission of electricity, which was unknown at the time the water system was started.

of this first unit was 2,400 kw., made up of two 1,200-kw. units. Construction was finished in 1904 and the generator was started for the first time on October 14 of that year.

During the first three months of 1905, the street lighting system of eleven circuits was taken over from the Seattle Electric Company and operated by the city. Under the city charter, the water department



EXTERIOR OF LAKE UNION AUXILIARY STEAM GENERATING STATION, SEATTLE, WASH.

and lighting department were one and took charge of the operation of the lighting plant May 1, 1905. The first commercial customers were connected to the city's lines in April, and in September the department began taking general applications for light and power, the rates charged being substantially lower than those in force before.

Before 1902, when the citizens expressed their determination to build a municipal plant, consumers of electric current for resident lighting were paying 20 cents per kilowatt hour to the private company supplying the city. The agitation for a municipal plant was followed immediately by a reduction to 12 cents, or 40 per cent less. When the city lighting department began taking contracts, rates for residence service were fixed at  $8\frac{1}{2}$  cents for the first 20 kw. hrs.,  $7\frac{1}{2}$  cents for the second 20 kw. hrs.,  $6\frac{1}{2}$  cents for the third 20 kw. hrs., and  $4\frac{1}{2}$  cents for all over 60 kw. hrs. This was immediately followed by a reduction in the rates charged by the private corporations to 10, 9, 8 and 5 cents, respectively, with a 10 per cent discount for prompt payment, making the companies'

rates approximately  $\frac{1}{2}$ -cent higher than the city rates. Early in 1911, when the municipal plant had grown to be a serious competitor, the company removed this differential and made its rates the same as the city rates. This has been followed by several reductions on the part of both the city and the private company, until now there is an ordinance making the city rate  $5\frac{1}{2}$  cents for the first 40 kw. hrs., 2 cents for the next 200 kw. hrs., and 1 cent for all over 240 kw. hrs.

#### Profit from Municipal Plant

The municipal lighting plant has returned the handsome surplus of over \$5,300,000 above all cost of operation, interest and depreciation and has cleared a surplus every year except the first two, when there was a slight deficit while business was developing, and it is certain that with the development of additional water-power, the rates will again be lower.

Before the municipal plant had been operating a year, it was apparent that its capacity was insufficient to care for the unexpected demands for service. A bond issue of \$250,000 was authorized in 1904, to build a distributing system, and in 1906 an additional \$600,000 bond issue was approved for the extension of the Cedar River plant. Before the extension could be built, the load of this plant had grown so that it was necessary to increase the capacity to 10,000 kilowatts, and another bond issue of \$800,000 was approved in December, 1908. With the proceeds of these bond issues a second larger transmission line was built, a second and larger penstock was laid from the timber end of the generating system, and two 4,000-kilowatt generating units were added to the station, making its capacity 10,400 kilowatts early in 1909.

A charter amendment in April, 1910, created the lighting department separate and distinct from the water department. The first superintendent of the new department was R. M. Arms, who resigned in March, 1911, and was succeeded by the writer, who has been designing and constructing electrical engineer for the plant

from its beginning.

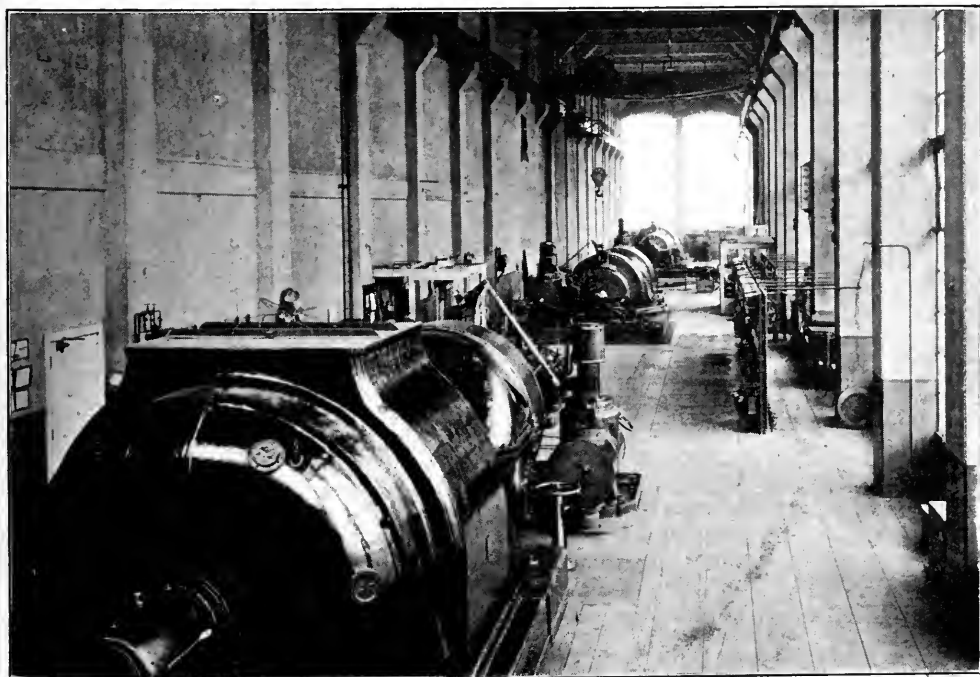
By the end of 1911 the load had increased so that additional capacity was needed immediately. In 1910, when a bond issue of \$1,400,000 had been ratified by the voters for the construction of a masonry dam across Cedar River at a point in the narrow gorge about 1½ miles below the timber dam, it was planned to raise Cedar Lake sufficiently to store the entire run-off of the river for power purposes, and incidentally conserve the flow for the city water system. The masonry dam was started in 1912 and completed in 1914. When water was turned into the reservoir, it was found that seepage through the north bank, which had been in some degree anticipated, was in sufficient quantity to seriously impair the value of the reservoir. The sealing of the basin presented an engineering problem of considerable magnitude, which has not yet been solved, although the dam is used when water flows over the old timber dam, and conserves a great amount of waste water.

During the building of the masonry dam the city found itself in imperative need of more power. In 1912, a 1,500-kw. water-power unit was installed on the east shore of Lake Union, using the overflow of the

city water-supply. By this time, a plant of that capacity was too small to have much effect on the situation. Plans were made for an auxiliary steam plant of 7,500-kw. capacity, and in March, 1913, a bond issue of \$425,000 was approved for its construction. In September, 1914, this plant, the first unit of the Lake Union steam station, began delivering current. Both the Cedar River and Lake Union stations were necessary to carry the loads during the winters of 1914 and 1915.

During 1911 and 1912, investigations were made of a number of additional power sites, but the votes for the condemnation of the site were a few hundred short of the 60 per cent necessary to carry a bond issue.

During 1914, 1915 and 1916, the demand for power in Seattle increased at an unprecedented rate, and it was necessary to meet the demand by the construction of an additional unit at the Lake Union steam station. Bonds in the sum of \$390,000 were ratified for this work in December, 1916, and the unit of 10,000-kw. capacity was installed and placed in service in May, 1918. By this time the load had again increased, so that there was no margin of capacity over demand and it was necessary



INTERIOR OF LAKE UNION AUXILIARY STEAM GENERATING STATION, SEATTLE

again to increase the generating capacity of the plant. Accordingly, a third unit of 12,500 kw. was installed at the Lake Union station and began operating in May, 1921.

### Further Development of Cedar River

During this time the further development of Cedar River had been awaiting the sealing of the basin. Sluicing operations to deposit silt and clay along the porous bank had been carried on, and reduced the seepage immediately above the dam to some extent. During times of high water, the basin back of the masonry dam fills with water which, unless used for power, immediately seeps through the fill and is lost. In July, 1919, bonds were authorized for the construction of an extension to the Cedar Falls plant to utilize these waters. The extension consists of a penstock from the masonry dam to the powerhouse and the building of a modern concrete station containing a 15,000-kw. generating unit. This work was completed in November, 1921, and proved a wise investment on account of the saving of waste water and also because the modern generating unit operates at considerably higher efficiency than the older units.

In a report to the Mayor, dated November 1, 1919, the writer outlined the proper future development of Cedar River by the construction of a tunnel, tapping the lake at a lower elevation and carrying the water past the porous bank of the reservoir to the concrete dam, or to the upper or lower falls of the Cedar River.

The continued growth of the system demanded a great increase in generating capacity and, after considerable opposition, the work again went forward by the acquisition of the Skagit River site and the construction of a unit of 50,000 horsepower.

### The Skagit River Project

The first 50,000-horse-power unit of the 550,000-horse-power Skagit River project is now under construction. The power site is situated 105 miles northeast of Seattle.\* The average stream flow of the Skagit River is 4,547 cubic feet per second, ranging from a minimum of 800 to a maximum of 50,000 cubic feet per second. This flow will be equalized by impounding the entire run-off in a reservoir 23 miles long, with a capacity of 1,300,000 acre-feet. This

reservoir, to be known as the Ruby reservoir, will lie entirely in solid rock of the hardest granite, through which it has taken ages for the river to cut deep, narrow canyons, with almost perpendicular walls rising for hundreds of feet. The Ruby dam, by which the reservoir will be impounded, will be situated in a narrow canyon and will be 480 feet high, to utilize the entire run-off. Its setting, like all the rest of the project, will be solid granite. At this point, it is only 18 feet from low water-level to solid bed-rock. The elevation of the crest of the Ruby dam will be 1,600 feet above sea level. Its entire length at the top will be 1,000 feet. The lower 250 feet of the dam will be in a narrow canyon with almost vertical sides.

At the Ruby dam site, the river flows through a narrow gorge for ten miles, falling 1,150 feet, and there reaches a point where the gorge suddenly opens out to a more level valley only 585 feet above sea level. The profile of the river in the ten miles of fall admits of three schemes of development. Since the mountains are thousands of feet high and continuous, it is possible and quite practicable to build one tunnel the entire distance and bring the entire 550,000 horse-power under one roof. This scheme would, however, require a greater amount of tunneling and would actually cost more than the development using two or more steps and require the whole outlay of over \$50,000,000 at once.

The second scheme which is being adopted is a two-step development which will bring the water from the Ruby dam through one or more pressure tunnels  $3\frac{1}{4}$  miles in length to the first powerhouse, having a capacity of 325,000 horse-power. At this point the river flattens for about 4 miles, and at the foot of this level a second dam, known as the Gorge dam, will be constructed to a height of 240 feet, backing the water up to the tail-race of the Ruby powerhouse. From the Gorge dam two parallel tunnels will again pick up the water and carry it two miles to a powerhouse at the foot of the canyon 585 feet above sea level, where 225,000 horse-power will be developed. One of these tunnels,  $20\frac{1}{2}$  feet in diameter, and a section of the powerhouse are now nearly completed, and 50,000 horse-power will be transmitted to Seattle by the end of 1923.

The transmission line to Seattle, which

\* See front cover of this issue.

will carry 165,000 volts, is 105 miles long. One substation is being built at the north end of the city, and another will be built at the south end, the two being ten miles apart.

### Street Lighting

The present cluster light system, which supplies approximately 30 miles of streets, contains 1,105 five-globe poles, 738 three-globe and 151 single-globe poles, making a total of 1,994 poles. There are under construction and in contemplation a number of new cluster-light installations, so that miles of streets lighted by cluster lights will be considerably increased in the near future. All cluster lights are supplied by a low-voltage multiple system. The series street-lighting system for overhead work comprises 32.6 6-ampere constant-current circuits reaching every part of the city. Gas-filled lamps are used, exclusively, of the 400-candle-power size for intersections and of the 80-candle-power size on pole brackets.

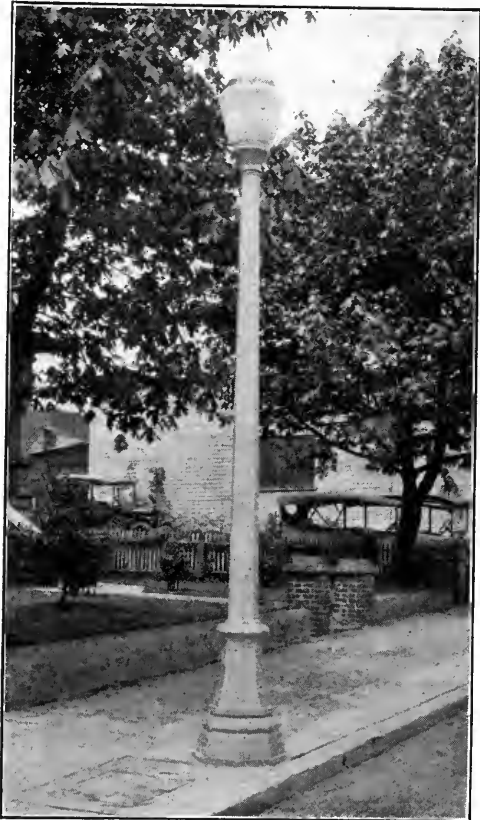
At the end of 1922 there were 1,434 400-candle-power lamps in operation and 8,189 80-candle-power lamps. In the entire city there are 1,052 miles of streets lighted with lamps, aggregating 1,853,940 candle-power.

### Shops and Storerooms

The lighting department maintains a modern machine and general shop as well as a general storeroom. In addition to repair work incident to the operation of a large electric system, many pieces of equipment, such as pole base transformers, disconnecting switches and current and potential transformers, are manufactured in the shop. The lighting department garage takes care of the fleet of 40 automobiles and trucks which are used in the construction, repair and operating work of the plant. Experience has shown that the use of automobiles improves the service given customers and materially cheapens construction costs.

### Distribution System

The distribution system of the department of lighting is unique in that it distributes to both urban and suburban customers through high-voltage feeder circuits. The system was begun in 1907, at which time 7,500 volts was the highest that the manufacturer would guarantee for a pole transformer. By the use of a grounded



TYPICAL ONE-LIGHT STANDARD IN SEATTLE

neutral 15,000- and 7,500-volt system, a further saving in copper was made. This system was extended to the south residence district and was later made the standard to succeed all 2,500-volt circuits with automatic regulators. These are being replaced as fast as can be done economically.

The system adopted finally was a 3-phase star connection of 15,000 volts to ground. This gives 15,000 volts to the property of other utilities or to the public, while the voltage of transmission between the three wires is 26,000. To make the system safe, 35,000-volt insulators are used, and the smallest wire is No. 2 B & S gage. The system is very flexible for underground work, since 26,000-volt cables are entirely practicable. Large cables may be in separate sheaths and then become ordinary 15,000-volt cables.

The size of a feeder is limited by the number of people that it is advisable to put out of service because of feeder trouble.



Five thousand kilowatts will furnish a residence population of from 50,000 to 75,000. A No. 2 wire will distribute this load with approximately the same voltage through all parts of the feeder, making ideal regulation. The 26,000-volt system thereby eliminates the need of any automatic regulators and so simplifies the system and reduces the substation apparatus and the space required.

Transformers are connected along the 26,000-volt feeder. They are placed on poles, or housed if desired, in the better-built residence districts, or placed in vaults in the underground district. Each of these transformers steps down to 2,500 volts and feeds a limited district. In the residence district these centers may be small in comparison with those in general use, so that the 2,500-volt wires may also be of No. 2 gage, and for safety to linemen interconnection of the 2,500-volt system may be often eliminated.

This distribution system eliminates feeder losses, gives vastly better regulation and allows 10,000 kilowatts to a feeder as against 500 kilowatts in the standard 2,500-volt system. It is admirably adapted to scattered power work and heavy domestic range service. To take care of the future power lines of Seattle, there will be only three distributing points, namely, the north substation, which receives power from the Skagit, the Lake Union steam plant, and the south substation, also receiving power

from the Skagit and from Cedar Falls and Tacoma.

The 26,000-volt network will be used to connect the three stations together, and the feeders from each station will be tied to those from the other station whenever possible, with the idea of securing safety by providing as many ties between stations as possible. All loads will be taken from the 26,000-volt line with the exception of those in the business districts, for which this plant will install a down-town station as near the center of the underground district as possible, which is to be fed from two or more 26,000-volt lines and to distribute at 2,500-4,300 volts. The underground primary feeders are so arranged that there will be two independent feeders supplying power to the service in each building in the underground district. This arrangement, with the efficient steam auxiliary and the character of the Skagit River power development, will assure as nearly continuous service to the city's customers as it is humanly possible to give.

#### Seattle-Tacoma Inter-Tie

An ordinance passed in May, 1922, authorized an inter-tie line with Tacoma, which was completed in April, 1923. This ties together properties now furnishing 60,000 kw. in light and power and having potential hydro-powers partially developed that will bring the aggregate to over 650,000 horse-power.

## Fewer Grades of Asphalt After January 1, 1924

The Result of Cooperation Brought About by the Department of Commerce in Its Campaign for Eliminating the Waste of Industry

**H**IGHWAY officials, consulting engineers and contractors, as well as manufacturers, will not be able to complain that there are too many grades of asphalt after January 1, 1924, as the Department of Commerce has announced that upon that date the recommendations adopted at the recent Asphalt Paving Conference will become effective and asphalt grades for use in the construction of sheet asphalt, asphaltic concrete, asphalt macadam and surface-treated pavements will be reduced from 88 to 9. The number of asphalt grades used as joint filler in the construction of brick and block pavements and various other types has likewise been reduced from 14 to 4.

Nine definite penetration limits for the construction of sheet asphalt, asphaltic concrete, and asphalt macadam pavement and for surface treatment, and four penetration limits for

joint fillers for various other types of construction, including brick and granite block pavements, were unanimously adopted at the final conference held at the Department of Commerce on May 28, 1923. These have been officially accepted as the standard of practise by the highway engineers of 30 states, the American Society for Testing Materials, the American Society for Municipal Improvements, the American Society of Civil Engineers, the United States Bureau of Public Roads, the Asphalt Association, and five manufacturers not members of the Asphalt Association. It was the sense of the conferees that the recommendations should become effective on all deliveries of material after January 1, 1924, and that they should be subject thereafter to annual review and such revision as the industry may find advisable for the benefit of the paving industry in general.

## Forward Steps in City and County

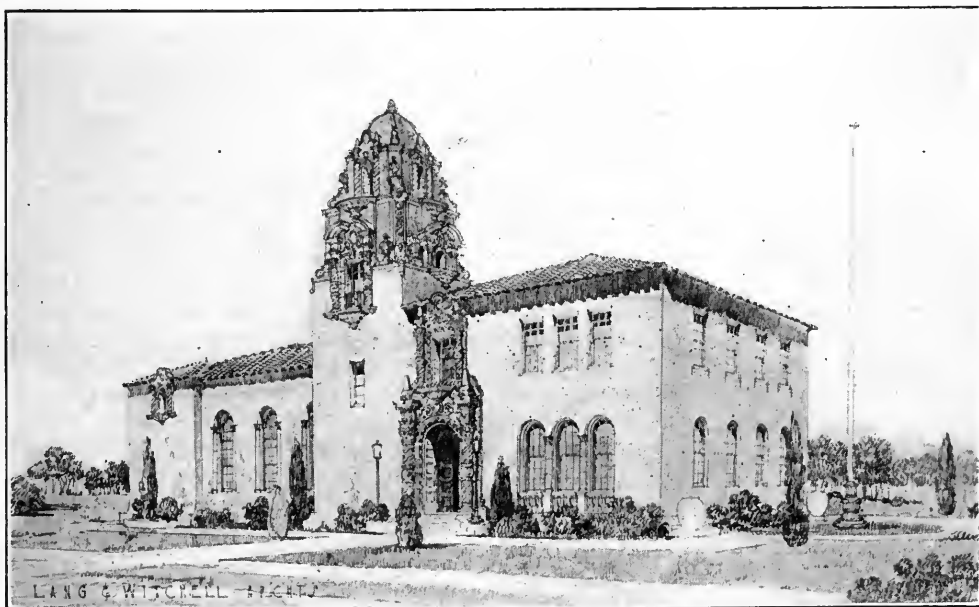
### *A Little Texas City Votes Bonds for a Combined Municipal Building and Community House*

HIGHLAND PARK, TEXAS.—Inspired by an awakened community spirit which has been strongly in evidence since the May Day Festival and the big Fourth of July celebration held this year in Highland Park, the residents of this city on July 28 voted a bond issue of \$65,000 for the erection of a municipal building and community house. Construction has been started this fall, and as soon as this fine structure is completed, which, it is expected, will be by March 15, 1924, it will be thrown open for the use of all local civic organizations, the Highland Park High School band, and community gatherings on special occasions. Speakers of national prominence, grand opera stars and other public entertainers of distinction are expected to appear on programs which will be arranged.

The building will be so constructed that it can be used entirely as a community house if Highland Park becomes a part of Dallas

in the years to come. The plans of the architects, Lang & Witchell, call for Spanish architecture, which is featured extensively in the finer homes of the Southwest. The outer walls will be of hollow tile and stucco, and the roof of Spanish clay tile. The entrance will be elaborately carved—a characteristic of this style. On the first floor will be the entrance lobby, with a 6-by 6-inch Spanish tile floor, and a broad stairway with an ornamental wrought iron balustrade. On the right of the lobby as one enters will be the Mayor's offices, the City Secretary's offices, the vault, and public space, with a counter for the payment of city taxes. The auditorium, seating 400, will be on this floor. It will have a large stage and be furnished with movable chairs, which can be pushed back to the walls in case socials or dances are given. Retiring rooms for women and for men are also on this floor of the building. On the second story will be the Council Chamber and the auditorium balcony, seating 150.

The interior walls will be of plaster tinted



PLAN FOR NEW MUNICIPAL BUILDING AND COMMUNITY HOUSE, HIGHLAND PARK, TEXAS

in flat oil colors. The auditorium floor will be of maple, and the walls will be wainscoted in oak to a height of 7 feet. The wainscoting in the other rooms of the building will be of birch, to the same height. There will be polished oak floors in the offices of the Mayor and City Secretary and in the Council Chamber.

The building will be heated throughout by the vacuum vapor system. The plumbing and other fixtures will be thoroughly modern. Drinking fountains will be installed on the first and second floors. All wiring will be in conduits.

One of the long-remembered events in Highland Park each year is the Christmas Festival held beneath a large, brilliantly lighted Christmas tree in one of the parks, after the singing of carols by school children, who are transported in large trucks through the principal thoroughfares, stopping to sing wherever a lighted candle appears in the front window of a residence. If the weather is very cold at Christmas time, the Yuletide exercises may be held in the new community house. Throughout the winter months this new structure will serve many and varied purposes and doubtless will play a large part in developing community spirit and neighborliness.

HENRY R. DAVIS,  
Mayor.

### ***Economies in Sewer Construction***

MONTREAL, QUE.—The use of discarded scoria blocks for the construction of sewers is an interesting experiment that is being tried in Montreal. This plan has been devised by the Chief Engineer of the city as a profitable means of disposing of the large quantities of old blocks which have been removed from the city streets to be replaced by asphalt.

The used scoria blocks, though somewhat worn, are believed to be quite as valuable as new bricks for sewer construction. The worn surface of the block is placed on the outside of the sewer and the unworn surface on the inside, new bricks being used only for the crown of the sewer, where mortar will hold brick better than stone. In making use of the old blocks in this way, the city is utilizing cheap material, which, if reduced to crushed stone for use in making concrete, as has been the custom heretofore, would be worth only \$1.15 per ton. A considerable saving will no doubt be

effected, since new bricks at the present time cost about \$18 a thousand. Two sewers, one 650 feet in length and the other 400 feet in length, have already been constructed with scoria blocks.

The experiment so far is believed to be a complete success, and the city plans to continue the use of scoria blocks for sewer construction as long as the supply lasts. It is estimated that there is now on hand a sufficient quantity to take care of all sewer construction scheduled for the next two years.

RENE BAUSET,  
City Clerk.

### ***Profitable Results from City-owned Electric Distributing System***

REDDING, CALIF.—The municipally owned electric distributing system of Redding, Calif., has netted an average monthly profit of about \$2,000 since its purchase by the city from the local power company in December, 1921. The income thus derived by the city is being devoted to the construction of permanent municipal improvements, such as street paving to connect with state highway laterals, etc.

The movement to acquire municipal ownership of the electric distributing system was commenced in 1917, following the installation by the city of a new modern street lighting system which not only had greatly improved the illumination of the city but had lowered the cost of operation as well. After a four years' struggle against opposition from the power company's interests, a decision was finally rendered by the State Railroad Commission, granting the municipality the right to purchase the system at a cost of almost \$60,000. The necessary funds were appropriated for this purpose, and the city began operating the entire electric distributing system, purchasing current through a meter from the Pacific Gas and Electric Company.

It is the policy of the city administration to retain in effect the same rates as have been fixed by the State Railroad Commission to be applied by the Pacific Gas and Electric Company for collections within incorporated cities in this district, with the exception of the combination lighting, heating and cooking rate, which has been reduced by the city to about 20 per cent below the rate fixed by the Commission.

After two years of municipal ownership

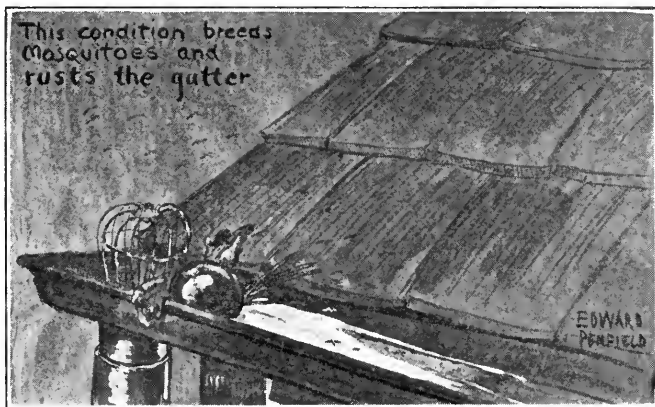
the electric distributing system is in first-class condition, growing in its field or service with the development of the city, and becoming increasingly profitable.

LESLIE ENGRAM,  
City Clerk.

### ***Art and Science Combine in a Village Campaign Against Mosquitoes***

PELHAM MANOR, N. Y.

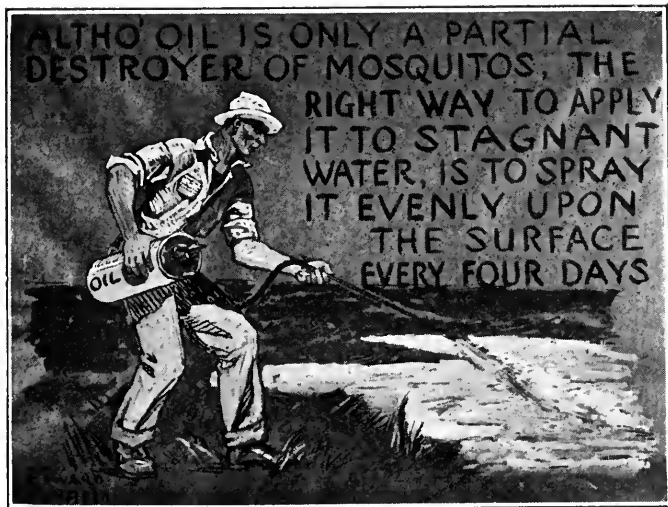
An unceasing war against mosquitoes has been waged in Pelham Manor for several years, as a result of which it was found this past summer that the pests had been practically eliminated from the village. The first definite steps towards mosquito control were taken in 1918, at which time the insects were so numerous throughout the community as to make outdoor summer life almost an impossibility. During several previous years the writer had personally taken up the study of scientific methods of mosquito control. The literature from the State Board of Health emphasized the fact that the most effective way to get rid of mosquitoes is to drain and keep drained all deposits of stagnant water. Contrary to



the belief of many people, the sprinkling of oil on stagnant water does not actually poison the insects. If it is sprayed in a thin layer on a pool, it will retard breeding, by suffocating the "wigglers" as they come to the surface for air; but a slight breeze will blow the oil to one side, and breeding will continue in the clear space.

With this knowledge in hand, the President and Board of Trustees of Pelham Manor were appealed to, but no immediate action was taken. The problem was then brought to the attention of the local Women's Club, and it was arranged that the writer should give short talks on the subject of mosquito control at the weekly meetings of the club. These talks were aided considerably by a map showing the breeding places in the community and a number of colored cartoons, two of which are reproduced herewith. In a short time enough members were sufficiently interested to form a committee to make a second appeal to the village authorities. This resulted in appropriating the sum of \$300 for mosquito elimination work.

The first year showed a great diminishing in the number of mosquitoes, and this ultimately led to a demand by the voters that a large drain be built through the most trouble-



PELHAM MANOR, N. Y., IS FORTUNATE IN HAVING AS ITS STREET COMMISSIONER A MAN OF PRACTICAL IDEAS WHO IS ALSO A NOTED ARTIST, THE ORIGINATOR OF THE POSTER IN AMERICA

some section of the community. An appropriation of \$2,000 was then made for the ditching, draining and oiling of the low lands. This work was laid out by an engineer, who indicated the levels and the right locations and directions for the ditches. All land that could not be drained has been filled in, and oil is sprayed on all catch-basins every four days during the summer months.

The residents of Pelham Manor are co-operating by keeping their property clean and free from any receptacle in which water may lodge. They also see that no water collects in the gutters on the eaves of their houses, keep their rain barrels covered, and, in fact, do everything possible to assist in the campaign against mosquitoes.

EDWARD PENFIELD,  
Street Commissioner.

### **Effective Work for Shade Trees by a Community Club**

CALGARY, CANADA.—The Sunnyside Community Club of this city recently distributed throughout the district which it represents the accompanying circular letter, making an appeal to the parents of children for the protection of our street trees. A good deal of unthinking destruction of street trees takes place in Calgary, and as similar conditions doubtless exist in other cities, this splendid piece of community service by the Sunnyside Community Club may be worth the attention of civic organizations which are working for a tree-embowered community.

WILLIAM R. READER,  
Superintendent of Parks.

### **Regional Planning Progress in the Los Angeles District**

LOS ANGELES, CALIF.—Out here on the Pacific Coast regional planning is assuming a new significance: it is being employed, not primarily as a

remedy for metropolitan deformities already developed, but in a positive sense—to build a metropolis where, as yet, none has existed. Here in the Los Angeles district, raw material, already reacting to the processes that produce a metropolis, is being purposefully, officially, fabricated through the medium of regional planning. Within a metropolitan area of 800 square miles, including some thirty municipalities, of which Los Angeles with 398.61 square miles is the largest, is found a potential metropolis whose component units are already conscious of their interdependence.

City planning in Los Angeles having been formally begun in 1920, the necessity for expanded fields soon became apparent. In January, 1922, there was formed at Pasa-

#### **Sunnyside Community Club**

TO THE PARENTS, HOUSEHOLDERS AND CHILDREN

Dear Sir or Madam:—

For the third time in three years the City of Calgary has replanted the dead and destroyed trees along the Sunnyside avenues, streets and boulevards. Owing to the favorable season for such tree-planting, the new trees, along with the older trees, are making a beautiful growth, promising shortly to transform our district into one of bowered loveliness.

But the necessity for a third planting in three years should be called earnestly to your kind attention in order that these trees remain alive to grace our homes and beautify our streets. Doubtless many died from lack of water in the first years of their life, and again doubtless many died from winter killing. But the Community Club of Sunnyside is under the painful necessity of admitting that most of the trees were destroyed by our children, in whom we had failed to instill the necessity of tender care. How grave was this loss will be seen from the fact that in a single block of 34 trees last summer, 25 of them were dead in six months, of which 22 were destroyed by our children. It is evident that while we adults carefully avoid injury to the young trees which are to add so much to our joy of life, we forget to instruct our children until the damage was done and most of our street trees were beyond help.

There is tremendous value to trees, both financial and aesthetic. A fair estimate would be that a full grown and thrifty tree in front of each house would add a selling value of perhaps \$250 to each home. But still greater is the esthetic value. Trees do not grow by accident, but only by the love and cherishing forethought of the people they are to benefit.

We, the Community Club of Sunnyside, believe the people of Sunnyside are the equals of any people living in any tree-embowered city of Canada, and that now our attention is called to it, our trees, new and old, are hereafter to be protected by our children instead of being destroyed. To that end we suggest the reading of this letter to our young folks. We know from comparative school records that our school children are in general among the very best behaved children in the city, and we believe that but a very little instruction will transform them all into brave protectors of the defenceless shrubs, the children of each block seeing to it their own block is not invaded by vandals from somewhere else. It should be pointed out to them the repeated cost of replanting has to be borne by their fathers and mothers, and that some of the trees, those on the Boulevard, were planted by citizens in sacred memory of the Calgary boys who went to the war and never returned.

Point out to the children that a serious menace to our young trees is the wagon of the baker and the milkman, undriven while the drivers make deliveries. Attracted by the grass on the boulevards, a horse can and does climb the curb and with the wagon straddle and bear down to the earth half a dozen trees in a few moments. Let every child know that it is a duty to prevent this by calling the drivers or leading the horses back to the roadway.

Once they learn the trees are to be protected from others, there will be little further likelihood of danger to the trees from the children themselves.

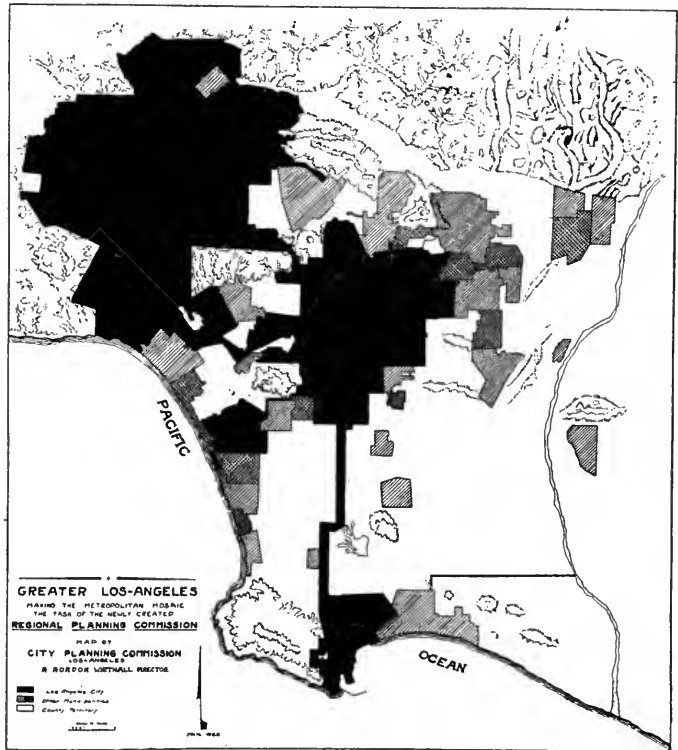
YOURS FOR A BEAUTIFUL TREE-EMBOVERED SUNNYSIDE.

THE COMMUNITY CLUB OF SUNNYSIDE.  
DAVID BOWEN, President.

dena the Regional Planning Conference. Subsequently, four other sessions were held in different places throughout the metropolitan area. In the meantime communities other than Los Angeles established city planning for their internal development. In January, 1923, there was formed by the county (in which the whole metropolitan district lies) an official Regional Planning Commission. This commission, consisting of five members, is now rapidly establishing itself in the machinery of government and is making excellent progress in coordinating the separate city planning activities into a single program of metropolitan building.

Details of accomplishments to date are probably of local interest only. Those that give promise of early realization, however, are of general interest. Here, in and about Los Angeles, where the component units are consistently increasing in population from 50 per cent to 100 per cent in a decade; where municipal territorial expansion is rapidly filling out the metropolitan mosaic; where, in Los Angeles alone, twenty subdivisions are added on an average each week to the municipal mosaic; where during 1922 a new residence was completed every 26 minutes of the working day; where industrial growth is exactly paralleling population increase; where maritime commerce now holds the Pacific Coast record; where a metropolitan consciousness has been born—here is a civic laboratory experimenting with regional planning under circumstances that produce almost immediate reactions that are as fascinating as a romance.

It is in this civic laboratory that the National Conference on City Planning will hold its 1924 session; by which time, at the present rate of progress, the effects of



The white portions represent county territory; the black, Los Angeles City; the shaded sections, other municipalities

regional planning can doubtless be inspected.

G. GORDON WHITNALL,  
Director, City Planning Commission.

### **Regional Planning for Milwaukee**

MILWAUKEE, WIS.—Considerable progress has been made in recent months towards the carrying out of plans for the physical development of "Greater Milwaukee," including the proposed metropolitan park system described in an article by William H. Schuchardt, President of the Milwaukee Board of Public Land Commissioners, in *THE AMERICAN CITY* of April last. The most recent important development is the provision made by the County Board of Supervisors in its 1924 budget for \$25,000 to be spent in the preparation of platting and zoning data for all the land intervening between the city of Milwaukee and its various satellites and beyond. A crew of eight engineers and surveyors will be employed in making the preliminary field surveys.

An illustrated pamphlet describing the 15th Ward's section of the proposed 84-

mile parkway has been published by the Milwaukee County Park Commission and Rural Planning Board. This also contains an article entitled "By Regional Planning the Milwaukee of To-morrow Conserves Nature's Attributes," by C. B. Whitnall, reprinted from *Parks and Recreation*. A copy of this pamphlet will be sent to any reader of THE AMERICAN CITY upon request.

C. B. WHITNALL,  
Secretary, Milwaukee County Park Commission and  
Rural Planning Board.

### ***When Snow Falls on the Playgrounds***

JERSEY CITY, N. J.—Plans are being made for an enlarged program of outdoor winter sports, in an effort to use to the best advantage Jersey City's fine playgrounds during the months of snow and ice. Skating carnivals, snow-shoeing contests and snow-modeling contests are among the events we expect to schedule as soon as the weather permits. It is hoped in this way to keep the little folks engaged in healthful outdoor play within safe enclosures, instead of indulging in the dangerous sport of sledding on the city's congested streets. In former years there has been little or no attraction for the children during the winter months at playgrounds not equipped with recreation houses.

Last winter, as an experiment, a snow-modeling contest was conducted in each of the city's playgrounds. In this activity we had the cooperation of the Rotary Club, which gave the prizes to be awarded to the winners. The contest had to be postponed on two occasions on account of lack of snow, but there was finally a sufficient sup-

ply to meet the demands of the young sculptors, and the tournament was started. To our great satisfaction, each of the playgrounds was crowded with children, and several hundred models were entered in the contest. Among the exhibits created were models of Abraham Lincoln, George Washington, Woodrow Wilson, a soldier going "over the top," dogs, rabbits, horses, etc. A committee of Rotarians acted as judges.

The snow-modeling contest was not staged with the idea of discovering any great sculptural talent, but was merely an attempt to keep the children of our city safe and happy within the playgrounds. The first contest met with so much enthusiasm that a similar event will no doubt be included in each of our future winter playground programs.

A. HARRY MOORE,  
Commissioner of Parks and Public Buildings.

### ***Summer Parking Space Becomes Winter Skating-Rink***

BROOKLYN, N. Y.—Without admission fee to the public and without increase in the city's budget, the Coney Island section of Brooklyn is to have, this winter, what is probably the largest skating-rink in the world.

Last summer on the Dreamland plot, which the city had acquired, a paved parking place with accommodations for about 3,000 cars was provided. This helped greatly in relieving the motor vehicle congestion which had become a serious problem at the beach resort. But motor traffic in winter time to Coney Island is very light, and this cement-covered area of some 400,000 square feet can be transformed into an ideal spot for winter sport.

Unfortunately, the climate of most of our large Atlantic coast cities is such that only on very few days during any winter are the park lakes available for skating. A two weeks' stretch of firm ice is a rare event. One day's warm spell can undo the work of weeks of preparation, and, more likely than not, the skating enthusiasts blame the park commissioner instead



COMMISSIONER MOORE AT THE SNOW-MODELING CONTEST





CONSTRUCTION UNDER WAY LAST SUMMER ON THE PAVED PARKING SPACE FOR 3,000 CARS IN BROOKLYN, N. Y., WHICH WILL BECOME A SKATING-RINK IN WINTER

of the weather man when the red ball comes down. As a result, open-air skating-rinks that can be flooded and frozen over far more quickly and frequently than nature provides a solid sheet of ice on a lake have sprung into great popularity.

New York has provided some small skating-plots in past years by flooding limited areas in the various playgrounds, but aside from the park lakes no skating areas of large size have heretofore been provided by the city. We shall not be able to flood the whole site of the Dreamland parking space, and some of the regular employees of the Park Department, whose work is naturally lighter during the cold season, will be detailed to keep the skating-rink in good order. Naturally, concessions will be let, but since I have made it my business to dispose of all park concessions at public auction, I am certain that prices will be secured for certain privileges that will make it possible to equip the rink with every facility without the public's even paying an admission fee.

Since announcing this plan I have been swamped with suggestions for its elaboration. Some of these proposals are too fanciful to be carried out, but a good many of them are practical. That it will be possible to arrange one, and perhaps more, winter carnivals, in costume perhaps, and with various other features of a festive nature, seems reasonable. Also, I confidently believe that the opening of this rink will help considerably in the campaign to make Coney Island a winter resort. For many years past the best interests of the resort have tried to extend its season further and further into the cold weather, but for one reason or another these efforts have never

been very successful. With a great gathering place for winter pleasure seekers, who, naturally, will spend a little money at least before and after entering the skating-rink, the campaign to keep Coney Island open throughout the year will be helped.

JOHN N. HARMAN,  
Commissioner of Parks.

### ***All-Year Recreation Program Almost Eliminates Juvenile Delinquency***

PASSAIC, N. J.—That an all-year program of supervised recreation can have very definite results in the reduction of juvenile delinquency has been demonstrated in Passaic during the last twelve months.

Early in November, 1922, a winter program was inaugurated for the first time by the Recreation Commissioners. Three different schools and a recreation hall were used for these activities. With the coming of warm weather six playgrounds and a swimming pool were put into use, with competent supervisors in charge.

A study of juvenile delinquency in the city of Passaic reveals that there has not been a session of our Juvenile Court since this all-year recreation program was started a year ago. A few boys have been before the police court, but these have been old offenders, or lads from neighboring cities. It is simply wonderful the way the indoor and outdoor recreation activities have reacted on the boys. The program of the Recreation Commissioners seems to have given the boys a chance to work off the surplus steam that otherwise might be turned to destructive purposes. Supervised recreation in Passaic throughout the year is here to stay.

THOMAS P. COSTELLO,  
Police Justice.

## Discussing Budgets and Plans in Mass Meeting of Citizens

PETERSBURG, VA.—"*CITY'S \$2 TAX RATE REMAINS SAME. ECONOMY IS KEYNOTE IN CITY AFFAIRS AS BUDGET SHOWS SLIGHT INCREASE*—Citizens attend Mass Meeting in High School and hear City Manager Brownlow and Mayor Zimmer explain how their money is being spent."

Thus ran the headlines of the *Progress Index*, the leading daily of the city of Petersburg. Following these headlines was an eight-column account of the meeting and the speeches. In this way the city government got its program across to the citizen body.

To be sure, there are other methods of presenting the annual municipal message—of informing the public of the past accomplishments and the future plans of the municipal government. A published report with its opportunities for charts and tables is valuable for reflective study and as a permanent record, but its appeal is somewhat impersonal—and not always read. A printed budget has wrapped up in its tabulated figures the visions of the administration, but it falls flat unless interpreted. On the other hand, a public mass meeting—the worthy descendant of the town meeting of New England—supplies a direct, personal contact between the public and the administration, gives the message the visible and audible support of the council and the city manager, and, finally, has those elements of human interest which make an acceptable news story with the consequent additional publicity.

When the program of activities for the coming year had received its last deft touch of interpretation from the Council body, a half-page announcement in the local paper called a mass meeting in the high school auditorium. More than eight hundred citizens listened attentively while Mayor Zimmer and City Manager Brownlow held forth on the activities of the city government and the fiscal program by which they were financed. The Mayor—the legislative head of the city—dwelt at length on the accomplishments of the past year and indicated the council policies which they reflected. The City Manager—the administrative head of the city—presented the program for the next year, interpreted it,

and described the technical features which entered into its accomplishment. The next day came the four-column head and the eight-column review. If the message was received with bliss, it was inspired by knowledge of its merit and not by ignorance.

The general support accorded this method of publicity cannot be explained away by calling it an innovation. Annual mass meetings have been held every year since the adoption of the council-manager plan of government in 1920. It is an accepted institution, tried and not found wanting. It is respectfully recommended.

JOHN B. BLANDFORD,  
Assistant to City Manager.

## Regulations for Land Subdivisions Within the Three-Mile Limit

SYRACUSE, N. Y.—The Planning, Parks and Recreation Commission of Syracuse recently adopted a resolution to the effect that maps of all new tracts or plots of land for building purposes submitted to the Commission for approval must comply with the following regulations:

	Feet
Minimum width of lots.....	50
Minimum depth of lots.....	125
Maximum length of street blocks....	700
Minimum width of streets.....	60

These regulations are, however, subject to such modifications as may be necessary in exceptional cases.

All maps, plots, subdivisions, lot layouts, and plans for the extension of streets and parks within the city limits and for a distance of three miles beyond the limits of the city, must be approved by the Commission before such maps will be accepted by the County Clerk for recording. This is provided for by an act of the Legislature which went into effect in April, 1922. Under this same law the Commission was also given power to prepare a comprehensive plan of the city and lands lying within a distance of three miles of the city limits and to indicate on the map the recommendations of the Commission for the future development of the streets, parks and playgrounds of the city.

THOMAS A. O'BRIEN, Secretary,  
Planning, Parks and Recreation Commission.

*The Semi-Annual Index of THE AMERICAN CITY MAGAZINE for Volume XXIX (July-Dec., 1923) will be sent to any subscriber on application.*

# Reports of Snow-Removal Activities in Massachusetts Cities

By H. N. Davis

Holyoke, Mass.

**D**URING the last two years the State Division of Highways of Massachusetts has cooperated with individuals and municipalities in the removal of snow from many of the main through roads of the state. The work has been performed mostly by trucks or tractors furnished by individuals, firms and municipalities, to which snow-plows, furnished by the state, have been attached.



A TYPE OF LIGHT-WEIGHT TRACTOR EQUIPPED WITH A SINGLE OR DOUBLE BLADE SNOW-PLOW, USED IN A NUMBER OF MASSACHUSETTS TOWNS

Berkshire County, in western Massachusetts, has furnished a most striking example of the use of tractors and snow-plows, which is described in the November, 1923, issue of *THE AMERICAN CITY*. Other communities and cities have made considerable use of lighter-weight tractors, scattering their units in the form of a road patrol for the clearing of snow from the roads. The city of Northampton, Mass., purchased two Cletracs with snow-plow equipment and were successful in keeping the roads clear and open to automobile traffic throughout last winter. The records kept in the Springfield, Mass., Arsenal show that the depth of snow which fell last winter has not been equaled in one hundred years. The fall of 80.56 inches, or nearly 7 feet of snow, exceeds that of the winter of 1898-99, which was considered unusually severe. More snow fell during one month last winter than through the entire winter of 1898-99. There were 23 snow-storms and two rain-storms last winter, according to the Springfield records, as follows: November, 0.06 inches; December, 15.50 inches; January, 54.50 inches, and February, 10.50 inches.

The chambers of commerce and automobile clubs of the different towns have managed to collect considerable sums of money to meet the expenses of snow removal and have proved a great help in Massachusetts. Greenfield raised \$2,500 for this purpose last year. In that city a demonstration of the value of a tractor for snow removal was given before the Snow Removal Committee of the Chamber of Commerce and members of the Board of Selectmen, and the Town Engineer, because the system of using a motor truck and plow had not proved satisfactory under the conditions met in Greenfield. The cost of keeping roads open from Greenfield to Sheldon Falls, Bernardston, South Deerfield and Millers Falls had been greater than expected; the committee reported that the cost of opening 20 miles of highway was between \$700 and \$800.

The town of Hadley, which is the connecting link between Northampton and Amherst, Mass., had considerable difficulty last winter in keeping its roads open to any kind of traffic. After the roads had been thoroughly blocked for several days during

last January, the town secured a Cletrac with snow-plow equipment and in a short time had the roads opened for automobile traffic.

The town of Ware, Mass., has owned a Cletrac with snow-plow for some time. On February 17, 1923, a demonstration of the work of the plow was given for the benefit of town officials visiting from Barre, Hardwick, Belchertown, Infield and Greenwich, and also citizens from other towns. Drifts several feet in depth were removed by the tractor plow without trouble, and the demonstration showed that the cost was not a fifth of what it would cost to break roads with horse-drawn plows and the work is

done much better in less time, according to a newspaper report. It is further stated that the tractor plow last winter saved Ware from being snowed in and permitted the use of automobiles to advantage.

More than 25 towns in western Massachusetts are equipped with light-weight tractors and snow-removal equipment for keeping their highways open to automobile traffic. They have found that the cheapest method of snow removal is to start operations as soon as the snow is 6 inches deep. This keeps the cost of operation down, enables them to cover more mileage per hour, takes less power and fuel and insures success.

## The Vagaries of Cold Patching

### Why So Many Failures in Small Towns?

**I**S it the fault of the material, the instructions given to the consumer, or the consumer himself, that one sees so many cold patch jobs which have quickly gone to pieces? Inasmuch as cold patch jobs can and do stand up under very heavy traffic when properly made, it cannot be blamed on the manufacturer and his material. Also, since many jobs do hold together it is certain that some users know how to handle cold patching materials. But, does the manufacturer lay sufficient stress on the method of using cold patch material so that the average street worker, foreman or superintendent who handles the material has the necessity for particular care impressed upon him? It is with this idea in mind that the following discussion has been prepared:

#### The Right Way

Let us first consider the proper method of laying cold patch so that it will withstand the blows of traffic and become an integral part of the road. When the first hole is discovered in an asphalt or concrete road, the cold patch material should be secured, mixed, cured and stored, ready for use. For best results the stone should be clean and dry, as neither asphalt nor tar adheres well to dusty or wet surfaces. The clean stone should be stored under cover so that it can be mixed as easily on rainy days, when outside work is prevented,

as on clear days. In mixing, about 16 to 18 gallons of the cold patch binder are used for a cubic yard of stone and sand; usually  $\frac{3}{4}$ -inch stone and clean sand in the proportion of three parts of stone to one of sand are used. A convenient measure is 11 pailfuls of stone and sand to one pailful of the binder.

The mix should be cured for a few days before using, covering it with tarpaulin to keep out the rain. A hard crust will usually form on the outside, but this in no way injures the bulk. The mix will be found in perfect condition even up to six or more weeks after mixing.

The next important thing—and we might say the most important thing—is the proper preparation of the hole to be filled, as it is here that most failures seem to occur. The hole should be cleaned out, and all loose material removed. If it is dish-shaped, it should be cut out with a pickax so that the sides stand vertically, and if the hole is over 2 inches in depth, it should be filled within 2 inches of the top with 2-inch stone, the voids filled with sand and the whole well tamped. All dust should be swept or blown out of the hole, and the sides of the hole painted with a light coat of the cold patch binder. Then the mix should be put in, using slightly more than enough to fill the hole. It should then be tamped or rolled until the surface of the patch is level with the surrounding surface of the

pavement. The surface of the patch should then be sealed with a light coat of the binder, care being taken not to use too much, and then the whole covered with stone chips or pea gravel.

#### What Causes the Trouble?

The first difficulty that seems to be quite general is the failure to use sufficient sand to fill up the pores, so that the patch is too open. Second, the street gang is either in too much of a hurry or too lazy to clean out the dish-shaped hole so that the sides are vertical and there will be no dust in the hole. And third, the patch is not sufficiently tamped, so that it soon develops into another bump in the road.

In the case of the dish-shaped hole which has not been cut and which is frequently

just filled up with the mixture and rounded slightly so that traffic will compact it, the first heavy vehicle compresses the patch, pushing it out slightly at the edges, as it has no straight side to brace it and there is no bond between the road and the cold patching material. Another machine comes along, running nearer the edge and breaking off the material which has been pushed to the side, and traffic quickly whisks it to the gutter, where it was not intended to place the cold patch.

If street superintendents will take heed of this, there need be no failures in cold patching, no criticisms of the manufacturer and the material, and many more satisfied users of a method of saving all types of pavements when the first breaks show in the surface.

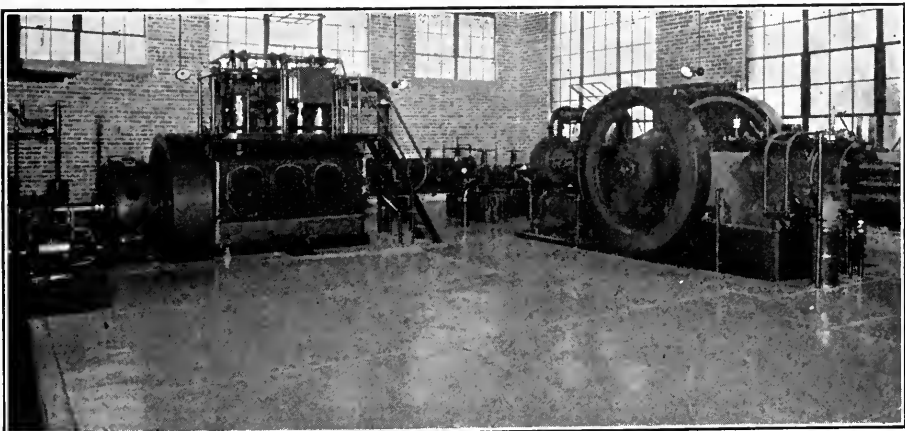
## Modern Equipment Augments an Old Municipal Water-Supply

Cast Iron Mains Replace 30-Year-old Wooden Mains, and Air-Lift Pumping System Increases Supply

By C. W. Melcher

**P**UMPING water from deep wells into city mains against a head of 43 pounds at a fuel cost of less than 1 cent per 1,000 gallons is being accomplished by the new municipal plant of Elmhurst, Ill., a suburb of Chicago. Prior to 1916, Mam-

moth Spring, four miles south of the city, owned and operated by a private corporation, was the source of supply. Water from that spring was distributed to users through a system of wooden mains that had been in service for 30 years. With the need



INTERIOR OF ELMHURST, ILL., WATER-WORKS, SHOWING DIRECT-CONNECTED GENERATOR AT LEFT DRIVEN BY VERTICAL OIL-ENGINE, AND AIR COMPRESSOR AT RIGHT

for more water, the municipal authorities put down a 975-foot artesian well in 1916, securing 185 gallons per minute by means of a deep-well pump. The water so obtained was sold to the company owning the franchise.

Two years later another well was sunk to a depth of 1,400 feet in order to supply the growing demand for water. The city then arranged to take over the old mains from the private company, paying for their use until the expiration of the franchise. To increase the supply of water, the new well was equipped with a Harris air-lift pump and booster operated by a 12- by 10-inch motor-driven Ingersoll-Rand compressor. Two 5-inch motor-driven Cameron centrifugal pumps were installed for high-pressure service. This equipment, which was placed in the basement of the City Hall, made it possible to raise 620 gallons of water per minute.

With an ample supply of water assured, Elmhurst began the replacement of the old wooden mains, and by the end of 1920 had completed the laying of a system of cast iron pipe and had made the necessary connections with the house services. This work was accomplished under the direction of Mayor Otto W. Balgemann and H. S. Crockett, Superintendent. On December 20, 1920, at the expiration of the private company's franchise, the water was shut off from the old wooden mains and turned into the new system. At that time there were 750 consumers, but 12 months later this number had increased to 1,600, with a maximum requirement of 705,000 gallons daily, all services being metered.

### New Municipal Plant

To keep up with the increased demand of the steadily expanding community, a new municipal water plant was authorized. A brick power-house was erected, the machinery was installed, and the old deep-well pump was replaced by an air lift. By

means of this, the flow of water was increased from 185 to 630 gallons per minute, giving a combined capacity of 1,250 gallons per minute for the two wells.

The air for the wells was supplied by a type POC-2, oil-engine-driven compressor. A 5-inch, single-stage, double-suction Cameron centrifugal pump is driven by belt from the fly-wheel of the oil engine compressor unit, the water being delivered into the surface reservoir by air lift and re-pumped into the elevated tank or directly into the mains by the centrifugal pump. By operating the air compressor at half-capacity through the medium of clearance pockets, the pump can handle all of the water lifted and thus take care of the ordinary requirements.

The power end of the entire installation is a type PO engine which delivers 73 brake horse-power at sea level and up to 1,000 feet above sea level when working at 240 r.p.m. At loads within 5 per cent of the rating and using fuel oil of not less than 18,500 B.T.U. per pound, the engine will not exceed a consumption of 0.45 pounds of fuel specified per brake horse-power hour, or 0.45 pounds at three-quarter load and 0.48 pounds at half-load. With the oil that is now burned, weighing  $7\frac{1}{2}$  pounds per gallon and costing  $5\frac{1}{2}$  cents, and with a consumption of 45 pounds per hour, the fuel cost per hour, when pumping at a rate of 630 gallons a minute, amounts to 33 cents per hour, or 0.87 cents per 1,000 gallons pumped from the wells and delivered to the mains against the stand-pipe head of 43 pounds.

In order to provide electric current for driving the original air-lift plant in the basement of City Hall, the new power-plant includes a 3-cylinder, vertical Price-Rathbun type PR oil engine, direct-connected to an 80-kv.-amp. Westinghouse Ex-pole generator with belted exciter.

ACKNOWLEDGMENT.—Courtesy of *Compressed Air Magazine*.

### \$1,919,648 Spent for Street Repairs in Chicago

THE Bureau of Streets spent \$1,919,648.15 from the Vehicle Tax fund for the repair and maintenance of streets in Chicago in 1922. The yardage of street repairs in various classes of pavements was as follows:

	Sq. Yds.	Total Cost	Cost Per Sq. Yard
Sheet asphalt ....	214,844	\$453,010.64	\$2.111
Brick .....	65,420	120,599.98	1.843
Crossed block..	61,252	113,819.28	1.858

Granite block ....	45,575	88,387.79	1.939
Macadam .....	321,666	262,167.28	.815
Asphaltic concrete resurfacing ....	22,797	58,463.68	2.564
Macadam resurfacing .....	43,302	38,205.95	.882
Asphaltic concrete repairs .....	52,619	100,239.86	1.905
Sheet asphalt resurfacing .....	84,880	169,269.82	1.994
Oiling .....	3,098,422	79,017.12	.0258

# The Water-Works of Elyria, Ohio

New Plant Completed in 1923 Provides for City's Needs for Many Years to Come

**E**LYRIA, OHIO, 26 miles southwest of Cleveland, located on the Black River about 9 miles from Lake Erie, was first supplied with water in 1879 by a private company which pumped water directly from the west branch of the Black River. The buildings and tower on which the supply tank was located are still in existence. There is also a small basin at the side of the river bank. It became evident that water from this source was not suitable or safe for domestic use and that a sufficient quantity was not available to make it economical to provide purification. Therefore, in 1898 the interest of the private company was purchased by the city, and in 1903 a new supply plant was built on the shore of Lake Erie with lines connecting with the city distribution system.

The rapidly increasing use of water following the connecting up of the lake supply to the distribution system was checked somewhat by installing meters in 1909 and 1910, but by 1916 it became evident that steps should be taken for providing increased facilities. In 1918 the city officials made an exhaustive study and found that the economical and practical course was to build a new supply plant at the lake, including therein such equipment from the old plant as was still capable of giving service.

The first bonds which were approved by vote to cover the cost of the improvements were dated July 1, 1919, and the contract was entered into with Morris Knowles, Inc., in August, 1919, to prepare the detail plans and supervise construction of improvements to the plant. Construction was started in October, 1920, and the coagulation basin was put in operation in May, 1921. Low-lift pumps were started in October, 1922, from which time the entire supply has come from the new plant.

Fuel is delivered in cars on a trestle outside the building and is dropped into a crusher and conveyed to a storage bunker of 150 tons capacity, or it may be stored on the ground directly under the trestle. A weighing larry under the bunker, located in front of the boilers, makes it possible to



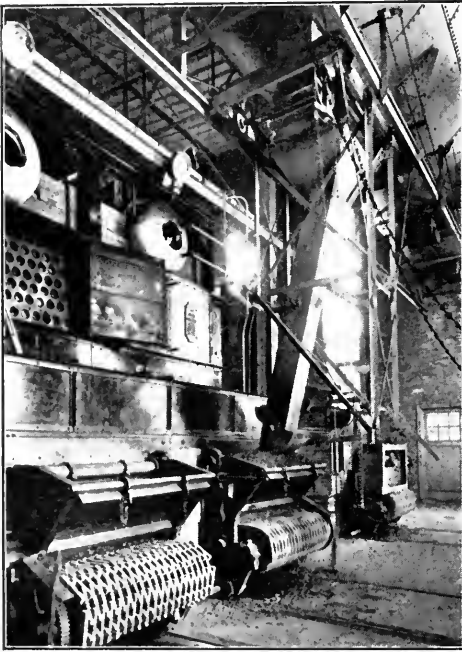
**FIRST WATER-SUPPLY PLANT OF ELYRIA, OHIO, WHICH IS NOW THE PROPERTY OF THE ELYRIA IRON AND STEEL COMPANY**

feed any boiler from any part of the bunker and registers the amount of coal in pounds. Ashes drop into hoppers in the basement ash room and are removed to the rear of the building by a car on a narrow-gage track. Steam flow from each boiler is measured and recorded by meters, as well as flue gas temperature and air flow. Recording thermometers register the time the boilers are blown off, and the temperature, and also the temperature of the feed water. The feed-water pressure is also registered and recorded.

## The Pumping Plant

The three low-lift pumps mentioned above are of the centrifugal, steam-turbine, gear-driven type. Two of them have a capacity of 4,200 gallons per minute, and the third, 5,600 gallons per minute. The output of these pumps is recorded by a Simplex meter on the first floor of the head-house,





INTERIOR OF THE STEAM POWER-PLANT OF THE ELYRIA, OHIO, WATER-WORKS, SHOWING THE COAL-BINS, WEIGHING DEVICE, CHUTES AND AUTOMATIC STOKERS FOR THE UNION WATER TUBE BOILERS

and a float valve in the mixing chamber automatically throttles their output when the water reaches the maximum head in the mixing chamber.

The high-lift Worthington pumps which deliver filtered water to the city are of the reciprocating crank and fly-wheel type. The original high-lift pump purchased in 1903 is still in excellent condition and has been moved into the new plant, but, having a capacity of only 3,000,000 gallons per day, it is suitable to run only during the extreme low-consumption period which occurs at night and on Sundays and holidays, or in connection with another pump. The second pump, purchased in 1905 and having a capacity of 5,000,000 gallons per day, has also been moved to the new plant and put in

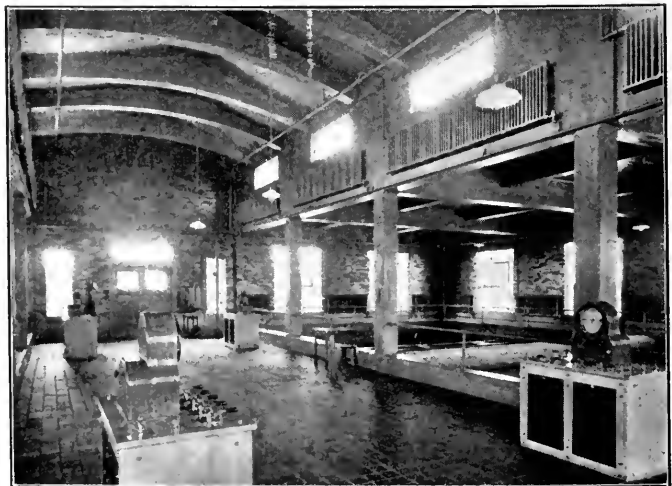
good operating condition.

Another high-lift pump was purchased having a capacity of 8,000,000 gallons per day, and this has been in operation in the new plant since November, 1922.

### Value of the Plant

The Elyria plant consists of three general sections—the supply plant, the connecting line to the city, and the distributing system in the city. With the exception of the buildings which house the machinery and filters at the lake, the entire plant is buried in the ground and invisible to the eye of the consumer. The fair estimated value of the Elyria water-works made in December, 1920, and containing allowance for the improvements described, amounts to approximately \$2,000,000, about \$1,000,000 of which represents pipe lines, valves, meters, etc., under the ground. The following tables show in round numbers the value of the visible and invisible parts of the water-works plant:

Visible		Per Cent of Whole
Lands and rights of way...	\$50,000.00	2½
Mechanical equipment ....	150,000.00	7½
Buildings .....	200,000.00	10
<b>Total .....</b>	<b>\$400,000.00</b>	<b>20</b>
Invisible		
Substructures, basins, piping, etc. ....	\$600,000.00	30
Distribution piping .....	1,000,000.00	50
<b>Total .....</b>	<b>\$1,600,000.00</b>	<b>80</b>
<b>Grand total .....</b>	<b>\$2,000,000.00</b>	<b>100</b>



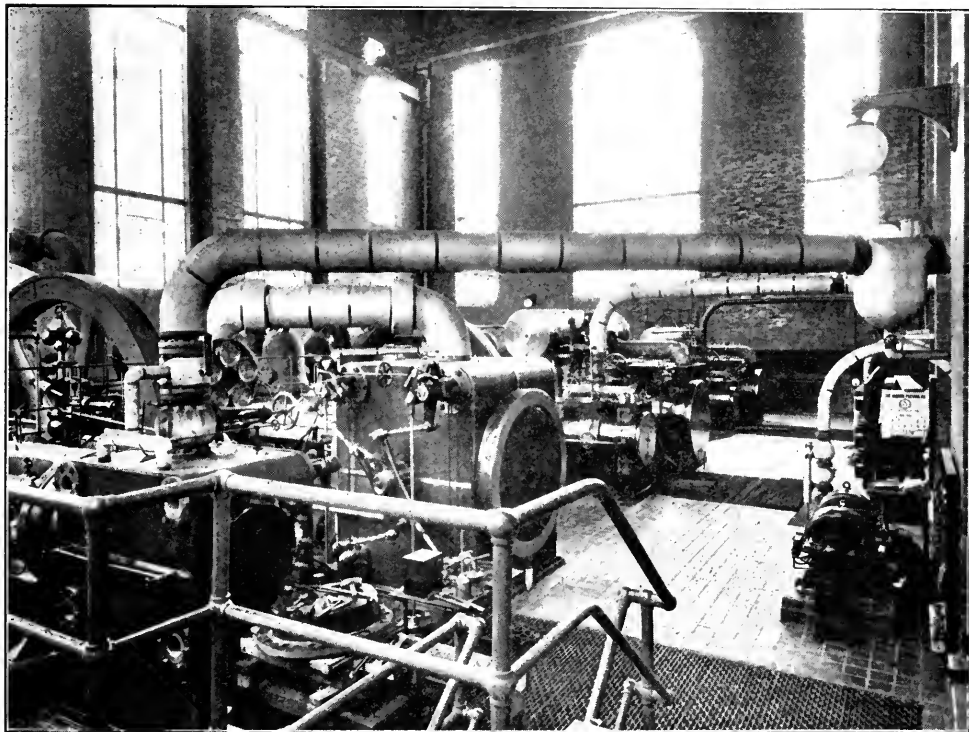
INTERIOR OF THE NEW FILTRATION PLANT OF THE ELYRIA, OHIO, WATER-WORKS

### Sinking-Fund Charges and Revenue

Money to pay for additions to the plant so that more consumers can be taken care of is secured by the sale of interest-bearing bonds, which are retired by payments into a sinking fund from the revenue received for the sale of water. Too many items enter into the operating costs to enumerate at this time, but the total is influenced both directly and indirectly by the amount of water required by the con-

much larger than it should be, because of failure to make sufficient annual contributions to the sinking fund in years following the original purchase in 1898.

Water was first sold on the flat-rate basis. Because of this method no check could be obtained as to the actual amount used by each consumer, and the total pumpage required increased rapidly from 1898 to 1908 at a much greater rate than the revenue, indicating a waste of water. Dur-



NEW PUMPING-STATION OF THE ELYRIA, OHIO, WATER-WORKS

The new pump in the foreground has a capacity of 8,000,000 gallons per day and was put in service in the new plant during November, 1922. The smaller pumps seen in the background were moved from the old station and are ready for operation. With any one pump shut down for adjustment, the station will be able to deliver over 8,000,000 gallons per day to the city

sumers. When the revenue from the sale of water is not sufficient, the financial condition of the water-works becomes unsound, and sooner or later means must be provided to correct the situation. Owing to insufficient revenue to meet the sinking-fund charges,—a matter which was taken up actively following a report by the City Auditor in 1920,—it was necessary to increase the water-rates. The amount necessary for sinking-fund payments and interest was found to be, under existing conditions, about \$100,000 per year. This is

ing 1909 and 1910, meters were installed for all consumers, which caused a decided decrease in the amount of pumpage, while the total revenue continued to increase. The 1911 total revenue was less than that of 1910, which may have been due to lessened consumption on account of the installation of meters.

From 1911 to 1916, while there was a rapid increase in pumpage, the revenue did not increase proportionately, because of a lowering of rates and minimum charges, but an increase of minimum charge shows a

marked increase in revenue from 1918. In 1920 a thorough investigation was made of the financial conditions, and a new rate schedule was adopted and put into force, beginning in 1921.

The maximum cost to any consumer for water under the 1921 rate schedule reduces to less than 2 cents per barrel of 50 gallons delivered at his tap. During 1922 the city received for pumping water 17.4 cents per 1,000 gallons, equal to less than 1 cent per barrel. The difference between the average of 1 cent for the year and 2 cents maximum paid by the small consumer is due in part to leakage and free water, for which the water department received no revenue, and in part to the lower rates given to the larger consumers.

### Force Mains

Since the construction of the lake plant in 1903, all of the water Elyria uses is pumped through one 20-inch cast iron pipe. This line is nearly straight, and in addition to being the shortest practicable length, allows water to be sold to a large number of residences along Lake Avenue. With the exception of a few breaks in the line, service has been uninterrupted in the entire time, but the pressure maintained at the lake has had to be gradually increased to overcome the additional friction in the line due to the increased amount of water passing through it. With no storage capacity in Elyria, the fact that only one supply line was available has prevented securing more favorable insurance rates in the city. This fact and the necessity for additional capacity resulted in taking steps toward a second line, and now that portion most liable to break is paralleled by a 36-inch steel line and studies have been started with a view to extending a duplicate service to the city.

### Intake

The intake built in 1903 remains the same as when built, although the amount of water pumped has increased  $2\frac{1}{2}$  times. It consists of a submerged wooden crib connected with a well on shore by 1,500 feet of 24-inch pipe. The shore well 16 feet in diameter is connected with the well in the basement of the new pumping-station by a 24-inch cast iron line. The well in the new plant is also provided with a 36-inch connection for an additional intake line when required.

Under normal conditions this intake when clear will deliver water at the rate of 10,000,000 gallons per day, but this cannot always be depended upon, and under certain conditions of atmosphere and temperature ice may form in the line and completely shut off the flow of water. Plans are under way to provide additional intake capacity.

### The Purification Plant

The raw water from the lake is lifted to the purification plant by low-lift pumps and then flows by gravity through several basins to the clear-water storage, from which it is pumped by high-lift pumps to the consumer. Three pumps, having capacities of 6, 8 and 6 million gallons per day respectively, are installed, giving at least 12,000,000 gallons capacity, with one pump in reserve. With the lake at normal elevation these pumps lift the raw water 40 feet to the mixing chamber, passing it through a Simplex meter, which indicates and records the amount of water and the speed at which it was pumped.

All of the piping in the various portions of the plant is laid along the central axis. It has adequate capacity to take care of considerable extensions and is so laid as to provide space for additional lines to serve the ultimate capacity of the plant. The main lines are 36 inches in diameter, and all branches have fittings so arranged that they may be extended to serve additions to the plant as they may be made. Located in the basement and first story of the head-house, the present single unit mixing chamber is 20 by 40 feet and 20 feet deep and is provided with wooden baffles. Operating at a rate of 8,000,000 gallons per day, this unit gives a 20-minute mixing period. The coagulant mixed with the raw water in this chamber may be iron and lime, or alum and lime, as best suited to the conditions of the raw water, and is more economical, considering the market price of the chemicals. Provision has been made by setting three motor-driven Gaunt dry-feed machines to use any combination of these chemicals and to have a spare machine. Storage of several car-loads of the required chemicals is provided on the floor above the mixing chamber, from which they may be fed directly into hoppers over the dry-feed machines.

The water-level in the basin is controlled

by a float valve, gates on the inlet and outlet, and a flood valve on the bottom, which allows the basin to be shut off, the water by-passed and the basin emptied and cleaned.

The coagulating basin is constructed in two parts and is entirely covered with earth. It is 196 feet long and each part has a width of 39 feet and a maximum depth of 16 feet. The capacity is approximately  $1\frac{1}{2}$ -million gallons, and the length allows ample time for settlement when the plant is operating at 8,000,000 gallons per day. The mixed water enters the basin through lines provided with Venturi tubes to which are attached rate-of-flow gages. By throttling the inlet valve and observing these gages, an equal quantity of water can be directed to each portion of the basin.

To remove the sludge ten 8-inch flood valves, which are operated by a hand wheel located on stands on the top of the basin are provided in each portion of the basin. These valves are placed nearer together in the inlet end, where the largest deposits of sludge occur, and by opening them periodically the sludge may be discharged to the drains and sewer with no interruption to plant operation. The division of the basin into two parts, however, allows of operating one part only, giving opportunity to thoroughly clean the other by means of flushing with high-pressure fire hose and lines built into the walls of the basins. A constant water-level is maintained by gravity flow from the mixing chamber and controlled by float valves on the inlet pipe.

The filter building is a one-story structure at the south end of the plant and contains four 2,000,000-gallons-per-day Norwood filter units complete with the necessary piping and control apparatus, which operates automatically to furnish the quantity of filtered water required by the consumers. The coagulated water enters the building through underground piping to a concrete conduit and thence to the filters through hydraulically operated valves which are normally in open position. The filtered water leaves through a cast iron underdrain system and rate controllers for each unit, which are connected to a master control operated by the level of water in the filtered-water reservoir. All valves in the filter piping are hydraulically operated,

the controls being located on marble tables opposite each filter on the operating floor. These tables also have indicating and recording rate-of-flow and loss-of-head gages, increase and decrease rate control, a master control, and shut-off on the pressure lines to all hydraulic controls. Concrete tanks of 50,000 gallons capacity located on the upper floor of the head-house furnish water for a high-velocity gravity water-supply to the filters.

### Filtered Water Storage

Elyria has a closed distribution system supplied by high-lift pumps at the lake supply plant, where the rate of pumpage is varied to supply the amount of water used by consumers. Normally the entire supply plant produces varying quantities of filtered water according to the demand, but, in order to carry over slight interruptions and give some flexibility, a filtered water reservoir having a capacity of 1,000,000 gallons was constructed. This reservoir basin is of concrete and is entirely underground and covered; from it the high-lift pumps draw their supply, and into it the filters discharge.

The basin is 168 by 63 feet and 19 feet deep, the filtered water entering at one end, and the pumps drawing from the other. A by-pass line makes it possible to take this basin out of service and empty it through a drain if occasion requires entering it for cleaning or repairing.

### The Power-Plant

The power-plant is housed in a brick building at the lake, measuring 110 by 68 feet, and is operated by steam with coal as fuel. Three 200-horse-power boilers of the water-tube type are installed and operated at 150 pounds pressure with 100 degrees superheat. Each boiler is provided with superheaters, soot blowers, automatic feed-water regulators, chain grate stokers and automatic damper and stoker control.

The best records obtainable show that the distribution system consists of 0.4 miles of 20-inch pipe, 3.9 miles of 16-inch pipe, 2.6 miles of 12-inch pipe, 2.6 miles of 10-inch pipe, 13 miles of 8-inch pipe, 19.5 miles of 6-inch pipe and 23.4 miles of 4-inch pipe, totaling 65.4 miles of pipe in the distribution system.

# Municipal Accounting Requirements for the Small City

By Henry Sayre  
City Auditor, Boulder, Colo.

THE purposes of good accounting for cities are:

(1) *To give information of the operations of the city.*—Accounts showing the cost of doing certain work, others showing the probable revenue from any given source, in so far as the accounts of the city can furnish this information, are essential to the officers in making administrative decisions. The experience of a city will enable its officers to set standards of results, or of costs, or of both, and to measure the efficiency of current operations by such standards. Information as to the costs of operations is essential to intelligent and effective administration. To the public this information is of importance, as it enables it to pass intelligently on the work and past performances of its officers and to establish personal responsibility and accountability. Cities can hope to have satisfactory administration for long periods of time only in so far as the public has means of intelligently appraising efficient administration or detecting inefficiency, rewarding the one and punishing the other.

(2) *To reflect its financial condition.*—Knowledge of the financial condition of the city is needed by the officers in order that they may know the extent of their accountability for the city's properties and funds and be informed of the liabilities to be met and the revenues to be collected, and that they may be advised of, and act within, the limitations imposed by budget allowances. This information is equally important to the public, as it enables it to determine

whether the officers have acted or are acting within such limitations and whether they properly account for the funds and properties entrusted to them, and also because it establishes personal responsibility and promotes honesty among municipal officers and employees.

(3) *To guide the city in planning for future operations.*—Adequate accounts throw light on the operations of the city and on the tendency of the prevailing methods of administration. They are, therefore, essential to guide intelligently both officers and public in matters of future policy. It enables the one to formulate them and the other to pass judgment upon them. In the formulation of policy, knowledge is substituted for guesswork and illusion yields to fact.

## Three Functions, Each with a Two-Fold Aim

A municipal accounting system has for its objects: (1) to give information of the operations of the city; (2) to reflect its financial condition; and (3) to guide the city in planning for future operations and the extension or curtailment of its functions or activities. Each of these functions has a two-fold aim: (a) to assist the administrative officers of the city in performing their duties and thereby administering the trusts imposed upon them; and (b) to enable the public to judge intelligently of the fidelity, efficiency and economy of their chosen officers.

## Requirements Which Must Be Met

That the purposes above outlined may be served by a system of accounts, these requirements must be met:

### ACCRUAL OF REVENUES AND EXPENSES

(1) Properly and accurately to reflect the operations of the city it is necessary that the accounts show the *accrual* of revenues and expenses as well as *encumbrances* of appropriations. The systems of most cities show only cash receipts and cash payments and all records and reports of cities are built around such cash statements. The money actually paid out is not an accurate measure of the cost of conducting the business of a city. Municipal financial officers sometimes argue that a statement of cash receipts and payments

answers every requirement of cities, because the overlapping items at the beginning and end of the year will, year in and year out, offset each other. This is to say that citizens and officers do not need exact information; that in public business we may trust to luck that everything will come out all right. If private corporations were to base the distribution of dividends among stockholders upon the income received in cash and expenses paid in cash, they would soon find themselves hopelessly in the dark as to their true financial condition, with the inevitable result that disaster would sooner or later overtake them. A statement showing the inflow and outflow of cash through the city treasury is, of course, desirable, since only by presenting such a statement can the treasurer render a proper account of his trust. Such a statement, however, must not be confused with one of revenues and expenses. Each statement has a separate function to perform. The former is the accounting of the treasury, while the latter is an accounting by the chief financial officer, which must embrace all financial transactions of the city, cash and otherwise.

#### FINANCIAL CONDITION ALWAYS SHOWN

(2) The system should afford means of showing the financial condition of the city at all times. This requirement hardly needs explanation. It is a basic essential for any system, yet it is remarkable that of the smaller cities few have a system that meets this requirement. To accomplish this there must be records which disclose not merely unexpended balance of appropriations, but as well the obligations of the city upon orders and contracts which have been made against the authorizations to spend. It should also show the claims presented even if not audited or paid—not only the revenues received in cash, but also those accrued which constitute assets of the city. It should also show the amount of arrears of taxes the city owns—the amount of unpaid assessments and the amount of advances made for improvements which may be assessed. A properly prepared balance sheet with its supporting schedules of details is of inestimable value to the administrator. It gives him in summary form periodically—yearly, quarterly, monthly or daily—a bird's-eye view of what the city owns and owes. It is a final summary on which he can base inquiry in many

directions and in regard to many things. Every city at some time or other is obliged to borrow money on its bonds to pay for properties purchased or improvements made. If a city fails to provide for the retirement of its bonds at maturity either by amortization through sinking fund or installment redemptions, it places itself at an obvious disadvantage in offering its bonds for sale. A sinking fund balance sheet showing the amount in the fund in cash and investments at a given time and the amount that should be in the fund at that time, is obviously necessary. It is surprising how few cities really pursue exact methods in providing for the retirement of bonded debt. When we realize what a simple matter it is to compute sinking funds and provide the annual installments necessary, and then see how officials have failed to do their duty in this respect, we get an idea of the unscientific character of many of our city governments. In order that every element of the city's condition may be seen at a glance, these several statements should be brought together in a summary consolidated balance sheet, the individual balance sheet being in the nature of supporting schedules to this summary.

#### COMPARABLE SUMMARIES

(3) In order that a system of accounts shall be suitable as a guide for financial and administrative policy, its accounts must be so arranged and the data recorded therein so classified that summaries of results are provided along fixed lines and upon common bases, so that comparisons can be made between the summaries for different fiscal periods and between those of similar departments or activities of different cities. In some cities attempt is made to classify the expenditures by subdividing the so-called "funds" for which appropriations have been made. When this is done, each officer usually adopts a classification of his own conception, which would not infrequently be changed or modified by a successor in office. The result is, as might be expected, where no standards are adopted and adhered to, that the classification is of very little value for the purpose of making cost comparison between different years in the same city, and of course of no value whatever in making significant comparisons between cities.

### Importance of a Properly Constructed Budget

Any plan of financial and administrative control of affairs of a city must be predicated upon a properly constructed budget. A municipal budget is intended to be and should be used as an instrument of financial control. The various appropriations for expenditures are in the nature of allowances to be expended by the officers of the city for the several purposes named. Through the budget the people and their direct representatives should control, regulate and direct municipal expenditures, thereby making the administration of government efficient and economical. An ideal arrangement of budget estimates and classification of expenditures, as adopted by the Bureau of the Census in its annual report on the financial statistics of cities, is by functional divisions denoting the operations or activities of the city. This classification is as follows:

- I. General government
- II. Protection of persons and property
- III. Conservation of health
- IV. Sanitation and promotion of cleanliness
- V. Highways
- VI. Charities and corrections
- VII. Education
- VIII. Recreation
- IX. Public utilities—non-commercial
- X. Miscellaneous
- XI. Municipal indebtedness
- XII. Construction and permanent improvements
- XIII. Public utilities—commercial

In addition, a further classification by purpose or object of expenditure should be made, as follows:

- (a) Salaries, wages and fees
- (b) Traveling expenses
- (c) Office expenses
- (d) Printing and advertising
- (e) Purchase of equipment
- (f) Maintenance of equipment
- (g) Materials and supplies
- (h) Repairs
- (i) Special contractual expenses
- (j) Rent

- (k) Insurance
- (l) Pension fund contribution
- (m) Other expenses

If cities would classify their accounts in accordance with these functional classifications, even though they do not show the expenses in all the detail suggested, it would still be possible to make comparisons of expenses between cities, with the assurance that the accounts and functional expense totals, which are the subject of comparison, are made up of the same items and in the same manner in all cities.

The development of municipal accounting systems has not kept pace with that of industrial and commercial concerns. The absence of competition and the frequent changes in the personnel of administrations are, in part, responsible therefor. If expenditures exceeded receipts, all that was necessary was to borrow money or to increase the tax rate during the subsequent year. Provision has been made in the past for limiting the borrowing capacities of cities to a certain percentage of the assessed value of the property of their citizens. Resort is now being had to various methods to increase their income; tax rates have been raised so high in some cities as seriously to interfere with their growth; assessments have been increased in others so that properties are now assessed at full market value, whereas formerly they were assessed at approximately one-third of their market value; and constant attempts are being made to increase the debt limit. All of these facts indicate that something must be done; that cities must either curtail their expenses or they must render less service to their citizens. They must have information which will enable their officials and department heads intelligently to effect such economies as will allow the continuance of efficient service to their citizens, without increasing the financial burden which they are already carrying.

ACKNOWLEDGMENT.—From a paper read at the 1923 Convention of the Colorado Municipal League, held at the University of Colorado, Boulder.

### Municipal Aquaria

San Francisco is now numbered among the cities in the United States that have municipal aquaria. There are only a few, six in all: New York, Boston, Philadelphia, Detroit, and Venice, Calif., and San Francisco. The Steinart Aquarium in Golden Gate Park was opened to the public a little more than a month ago, and in that first month it has attracted 232,947 visitors, a daily average of 7,740, while some days the attendance has reached 22,000. When the Aquarium opened there were 2,000 fish in the exhibit but now that has been increased to 3,500. The New York Aquarium is well known; 2,121,896 persons visited it during 1922, a monthly attendance of 176,825. The exhibit on January 1, 1923, contained 5,236 specimens.—*New York Municipal Reference Library Notes*, Nov. 21, 1923.



# The Disposal of Garbage by Incineration in Charleston, W. Va.

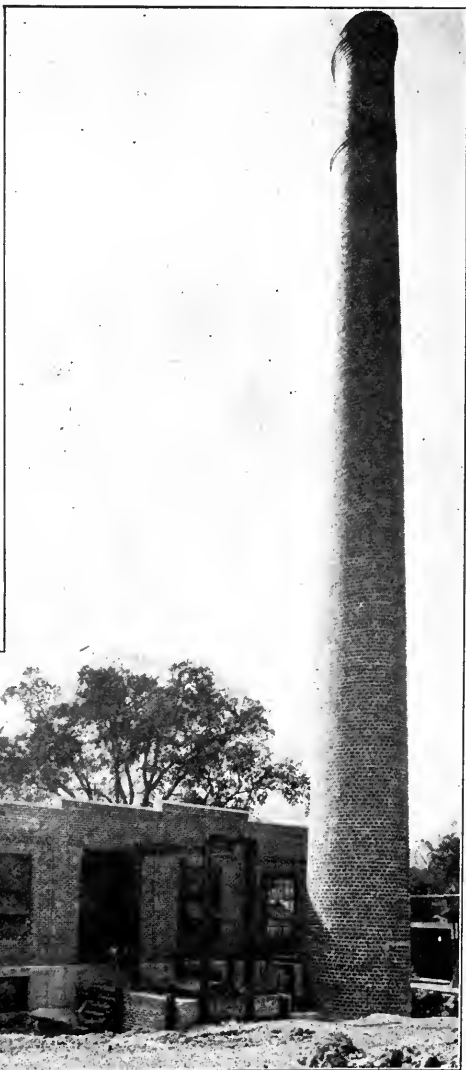
First Installation of Balmer Refuse Destructor in the United States Has Been in Operation Since September, 1923

CONSIDERABLE technical interest attaches to the new Balmer refuse destructor at Charleston, W. Va., the regular operation of which began in September last. It is located on the site of the old incinerator and dump, in Estill Street, within a few blocks from the City Hall, near the center of the population. This is the first plant on the Balmer system in this country, and its installation affords an excellent opportunity for city officials and sanitarians generally to observe its operation under North American conditions.

The capacity of the Charleston plant, according to guaranty, is 70 tons of garbage and miscellaneous refuse daily. This is divided between two batteries of three furnaces each. Each battery has its own storage bin, into which the refuse is discharged through hatches direct from the trucks and wagons, which enter and leave the building in line, with a minimum of lost motion.

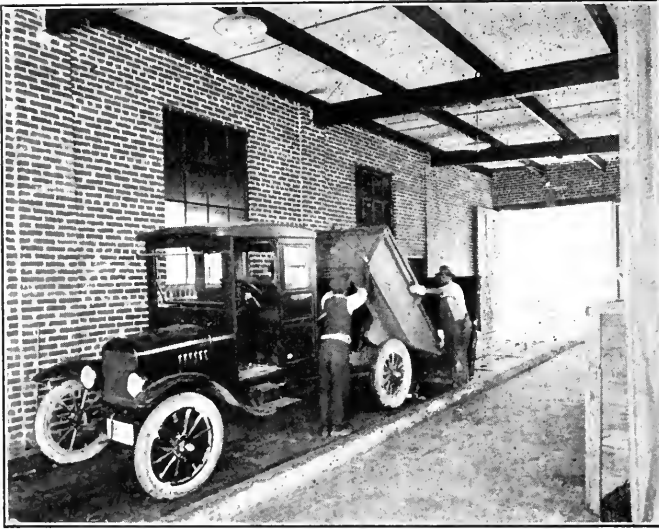
The storage bins above the furnaces are constructed of steel and concrete. The bottom of each bin, which is sharply inclined forward, forms the top of a hot-air chamber, which is heated by radiation from the combustion chamber of the battery. The

vapors and fumes produced by the warming refuse in the bin are drawn off by the forced blast blowers and utilized with the air supply for maintaining and intensifying combustion on the fire-grate. Each bin



GENERAL VIEW OF CHARLESTON, W. VA., INCINERATOR

Just beyond the ramp may be seen the automatic ash dump, and at the right near the chimney the crematory for animals



THE DUMPING FLOOR OF THE NEW CHARLESTON, W. VA.,  
GARBAGE AND REFUSE INCINERATOR

is fitted with an efficient system of drainage, the practical value of which in improving combustion has been demonstrated in the case of the large quantities of swill and slop brought daily to the plant.

The passage of the refuse from the storage bins to the furnace feed-hoppers is effected through vertical guillotine doors in the face of the storage bins. The refuse is raked direct from the storage bin to feed hoppers. The discharge through these to the furnace is controlled by a simple gear which may be operated conveniently either by the fireman or by his assistant on the charging floor.

Each battery, as stated above, is composed of three fire-grates under one common arch. The fire-grates are of the usual fixed type with bars set close together, and are surrounded at the sides and rear by a cast-iron box, which is ventilated from the outside.

Two exit flues in the rear wall between furnaces 1 and 2, and 2 and 3 of each battery, conduct the gases of combustion

to the combustion chamber. Here the gases are met by a blast of superheated air, which in its course from the blower passes through hollow baffle-walls dividing the combustion chamber. Although the plant is operating only two eight-hour shifts daily and for six days weekly, the temperatures developed in the combustion chamber range between 1700° and 1900° F. The chimney is practically smokeless.

Before delivery to the ash-pits, the mixed air, fumes and vapors absorbed from the storage chamber by the blower

are propelled by the latter through piping in the hot-air chamber, the principal object being to prevent the re-condensation of volatilized hydrocarbons. The air is delivered to the ash-pits at a maximum pressure of 4 inches, water-gage, and a maximum delivery of 8,000 cubic feet per minute.

As will be observed from the accompanying photograph of the plant, the furnaces



GENERAL VIEW OF FIRING SIDE OF CHARLESTON INCINERATOR  
SHOWING DUMPING LEVEL, CHARGING LEVEL AND CLINKER-  
ING LEVEL, AS WELL AS BUGGIES FOR REMOVING ASHES

are constructed below ground level, leaving a relatively small difference of 7 feet between the ground level and the driveway floor. Accordingly, a short ramp is all that is required for the entrance and exit of the trucks and wagons.

### Removing Ashes and Clinker

The ashes, clinker, tins and other metal objects are delivered, as drawn from the furnaces, to a skip-hoist which discharges into an ash-bin. This is so placed as to discharge in turn conveniently into city trucks for distribution to land-fill dumps. As Charleston is in a district where natural gas is used almost exclusively for domestic and industrial purposes, the refuse to be burned in the furnaces is practically all vegetable, and leaves but a very small percentage of ash. The proportion of this has not yet been determined with accuracy.

### Animal Crematory

Outside of the main building between the latter and the chimney, an animal crematory was created as part of the destructor contract. The high-temperature gases from the furnaces are by-passed through the crematory and, with the aid of a supplementary supply of air from the blower, the cremation of horses, mules, cattle and smaller animals is accomplished in from one-half hour to one hour, according to the size and condition of the animal, and without nuisance.

The refuse of Charleston, like that of many other American cities, contains a considerable proportion of barrels, boxes, crates and other bulky combustible objects which it is undesirable to mix with the ordi-



CLINKERING FLOOR OF THE INCINERATOR

nary refuse. The animal crematory has proved to be the most speedy and convenient means of disposal for this kind of waste.

In spite of the total absence of coal ash from Charleston refuse, and the pressure of exceptionally large proportions of fruit, vegetables, slop and swill, the Balmer destructor sustains the high temperatures above mentioned, without the use of any auxiliary fuel whatever.

### New Plant Brings Free Collection

As soon as the successful operation of the new destructor plant was assured, the municipality of Charleston inaugurated a free garbage collection service for households. The trucks employed are of the back-tilting type. This new service is popular and has already been extended from individual houses to apartment houses, with the prospect of further extensions to the collection of rubbish and other wastes.

The erection of the plant was carried out by the Rust Engineering Company of Pittsburgh, Pa., under a subcontract with the Balmer Corporation, of New York, the licensees of the system.

### CITY PLANNING FOR NEW TOKIO

THE AMERICAN CITY is indebted to *The Chicago Tribune* for the following copyright dispatch received by that newspaper on November 8 from Japan:

"The street plan of the new Tokio provides for twelve main avenues centering around the Imperial Palace, and all with a width of from 135 to 270 feet.

"Buildings in the business section will be restricted to a height of 100 feet, while structures in the residential section may not be more than three stories. The majority of the Government office buildings, colleges and universities will be rebuilt in the suburbs.

"The park acreage in the city will be doubled, while numerous new canals will facilitate transportation and provide an unflinching water-supply for fires."

# A Million-Dollar Water-Supply for a City of 18,000

The Story of the Paris, Texas, Water-Works

By Cora Moore Cameron

Secretary to the Mayor, Paris, Texas

PARIS, TEXAS, has been suffering from the lack of a sufficient water-supply for a goodly number of years. Back in 1898 the city voted bonds for the construction of a billion-gallon reservoir, a supply which at the time seemed quite ample for two or more generations. In 1914 the cry, "Be saving with the water, the lake is getting low!" astonished many of the citizens. Wells were sunk, in the hope of getting plenty of water. These deep wells proved inadequate and the water that was produced killed vegetation. From that time on, until about three years ago, another source was seriously considered.

The reservoir built in 1898 covered about 165 acres and had a drainage area of approximately 4 square miles. Another lake that size would not be sufficient for a town the population of which is about 18,000, nor could the first lake be enlarged, because of its location and the extremely small watershed. The newspapers took up the "hammering" of the city officials for their delay in securing the proper source. Months dragged by, and still it seemed that Paris

would eventually have to resort to private wells and that the various industries would be forced to seek new locations. But the City Administration, quite aware of the emergency, were working day and night in a quiet but very effectual way under the supervision of Mayor J. M. Crook. They secured the services of Daniel W. Mead of Madison, Wis., and John B. Hawley of Fort Worth, Texas, as consulting engineers. These engineers, after making surveys of Lamar County, decided that the best course would be to dam up Pine Creek, which is a tributary of Red River. This project would necessitate the expenditure of approximately one million dollars. When the plan was placed before the people for their approval they voted, 12 to 1, in favor of a million-dollar water-works bond issue with which to carry on and complete this work.

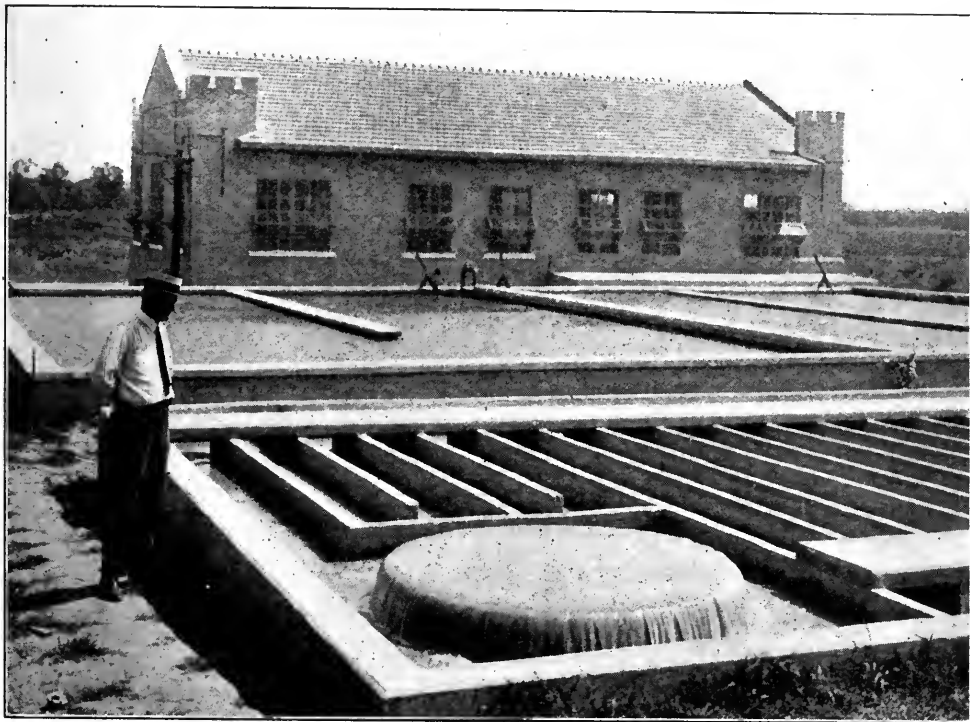
Much delay was caused, however, after these bonds were voted, by the unfavorable bond market. In fact, the bonds were not disposed of until about January, 1922.

The reservoir, when complete and full, will hold approximately 4 billion gallons of water, submerging about 1,300 acres, within a drainage area of 48 square miles. The dam is 3,125 feet long and 30 feet high, with a reinforced concrete spillway 300 feet long and 20 feet high.

The purchase of the necessary land for the reservoir from the various owners required much skill and careful handling, for, although the land immediately on the creek was untillable, the owners saw a chance to reap a profit, and therefore the price was raised considerably. Most of the land, however, was purchased for approximately \$55 per acre.



SPILLWAY OF PARIS, TEXAS, WATER-WORKS DAM



SETTLING-BASIN AND AERATOR OF PARIS, TEXAS, FILTRATION PLANT

Contracts were finally awarded for the different parts of the work, including the dam, spillway, pump-station, filtration plant, elevated steel wash-water tank with a capacity of 30,000 gallons, and the 500,000-gallon elevated steel tank in the city. Upon entering into the contract and at the beginning of the work, the contractors were very much handicapped on account

of the railroad strike which was in full swing. Supplies and apparatus with which to carry on the work were delayed. The pipe for the 20-inch main line into the city was considerably delayed.

The completed water-works are a source of satisfaction to the entire city. The lake, at the present time, lacks only about 3 feet of being at the top of the spillway.

## Atlanta's Notable Progress in School Building

WITH the opening of the 1923-24 school year Atlanta found herself with the most adequate school equipment in all her history. Old and ramshackle buildings have been replaced with handsome, fire-proof structures of brick, tile, and cement. Old buildings have been renovated and enlarged. And for the first time in the history of the city, adequate provision has been made for the education of the negro children.

Fifteen new school buildings, including nine grammar schools, four junior high schools—one of them the new Washington School for colored children—and two new senior high schools are either completed, or well on the way toward completion. These buildings have been built at a cost of approximately \$4,000,000. They are built on the unit system, with ample room for expansion, each being in the center of a growing community.

While plans for the new buildings include auditoriums, gymnasiums, health clinics and playground facilities for each, the shortage of classrooms and the need of funds beyond the \$4,000,000 available, compelled the building committee to construct only those parts of the buildings that were absolutely essential. Thus the building of the auditoriums and gymnasiums has of necessity been postponed until a later date.

As soon as the schools are all in operation, however, and the public has a chance to see the sort of buildings erected and what is being accomplished with them, the school board intends to ask for a second bond issue—\$5,000,000 this time—with which to complete the features omitted, and to carry on the building of the additional units which will soon be needed if the present rate of growth of the city continues.

# To Help the Dead Hand by a Living Mind

"The Most Important Single Contribution of Our Generation to the Art of Wise Giving"

By Ralph Hayes

Director, The New York Community Trust

**E**X-MAYOR Byron Mullanphy, of St. Louis, dying in 1851, wished to make his fortune serve some common need. He had lived to see the start of the westward rush—and to see throngs of prospective settlers flounder in St. Louis, discouraged and destitute. He, therefore, left a third of his property to aid "worthy and distressed travelers and emigrants" coming to St. Louis, but bound "bona fide to settle for a home in the West." His act was acclaimed at the time. But a few years later the railroad had pushed far beyond St. Louis and the number of qualified claimants under Mullanphy's will steadily diminished; then they practically disappeared. But year by year the bequest increased. It amounts to nearly a million dollars now, and for seventy years the Managing Commissioners have been fettered by those terms set down before the Civil War.

A certain Henry Smith, who died in 1626, bequeathed the income from half his fortune to ransom pirates' captives. Since 1723 no applicants have qualified. But the other half of his income was to succor indigent relatives. The supply of these held up. In 1700 there were four. Two centuries later, somewhat more than 400 were

subsidized—25 per cent of whom were great-great-great-great-great-great-great-great-great-nephews and nieces of the original Mr. Smith.

## Essentials of the Community Foundation Idea

1. One or more banks or trust companies agree to accept bequests for civic, charitable or educational purposes, and to invest prudently the principal of such funds.

2. A carefully selected group of citizens (the Committee on Distribution), representative both of the trustee banks and trust companies and of the public, supervises the disbursement of the income (and, under certain conditions, portions of the principal) of those bequests.

3. The Committee on Distribution employs income customarily for the purposes specified by the donor. In the absence of such specifications, it determines upon the use most conducive to the interests of the community. The donor, furthermore, retains the assurance that if, by lapse of years, originally designated beneficiaries become obsolete or harmful, the Committee guarantees the application of income to such other objects as harmonize with the spirit of the gift and the benefit of the community, and this without unreasonable delay, expense or litigation.

A Philadelphia man in 1907 left \$3,500,000 for "the care and education of poor, white, healthy girls, both of whose parents shall be deceased." In 1909, a second Philadelphian left \$4,500,000 for "full orphan or fatherless girls." The hampering and restrictive conditions of the wills were such that, after ten years, this huge fortune of \$8,000,000, capable of caring for many hundreds of children was providing for only 114 girls.

There are in America and England literally thousands of such cases of tragic waste, obsolescence, and partial or complete

frustration of the desires of donors—and their subsequent agents—to serve the commonwealth.

Even Alexander Hamilton, peerless financier of the new Republic, would find, if he might pass this way again, that the dead hand, without a living mind, had baffled all his brilliance. An old sailor, Captain Randall, went to Hamilton's chambers in 1801 for advice about his will. Hamilton urged that the Captain's funds should serve the men of the sea, and go for a sailors' home.

He drew a will accordingly. When Captain Randall died, he had \$7,000 and 21 acres of land outside New York—"a good farm, containing an excellent orchard and market garden." He might have added that it was stocked with geese, busily laying golden eggs. For the land, then a mile outside New York, was later known as the area about Fourth Avenue, Fifth Avenue, Tenth Street and Waverly Place. No one knows how enormously great that bequest to found a sailors' rest has become; the most conservative of the estimates which have been made place it in the neighborhood of \$25,000,000.

Fifteen years ago, the late Judge Frederick Goff, a noted lawyer of the Middle West and the President of the Cleveland Trust Company, devoted himself to finding a way to help the dead hand by a living mind. He developed a plan which the Directors of the Cleveland Trust Company in 1914 embodied in a resolution establishing the Cleveland Foundation, the first of the community trusts. When Judge Goff died, in March, 1923, it was learned he had drawn his will the day after the action of the Directors, and had named the Foundation as a beneficiary of his own fortune. Since that time resources valued in excess of \$100,000,000—to be received in future years—have been pledged to the Cleveland Foundation, and the income of more than a half-million is now available. During the same period, upwards of 40 community trusts have been founded, upon the same model, throughout the United States—an impressive indication of the simple practicability and the wide appeal of the plan.

The community trust or foundation makes available at last a plan combining assurance of the effectual utilization of bequests, with adequate flexibility to adapt itself to changes which history demonstrates are sure to occur. It provides a means of meeting the varying conditions of coming years, conceding to each generation a measure of ability to administer wisely its own affairs, rather than attempting what has so often failed—to divine in detail the needs and problems of all the future. It gives a new significance and opportunity to the ownership of wealth. It guarantees to donors of funds a proper custody, proper management and proper distribution of income. It affords a means for the application of an accumulated fortune, in whole or

in part, to the permanent service of the community. In short, it makes wealth more respected and respectable by insuring its usefulness.

Whether or not it is, as Mr. Carnegie once remarked, a disgrace to die rich, certainly the past decade has witnessed a quickening of the feeling of responsibility on the part of private wealth to serve the commonwealth. Men are realizing increasingly both the individual handicap and the social peril in leaving to children such vast and unearned sums as to remove from them all necessity and desire for effort and achievement.

The idea of establishing large funds or foundations, heretofore, has been associated with men of great wealth and prominence. But "people of limited means," as Judge Goff has said, "share with men of wealth the desire that the world may be better for their having lived. They often feel a deepening sense of regret as the shadows lengthen, that the effort to work their way up-stream and to accumulate has too fully consumed their energies; that the struggle has been too much for self and family and too little for mankind. They would welcome finding a way in which the residuum of their estate, whether it be large or small, might be wisely used in helping to make better men and women. Unable to determine what the needs of the future will be, when funds from their estate might be available for such use, and precluded because of the expense from making use of a privately-owned foundation with its self-perpetuating board of trustees, their purpose can only be accomplished through a corporate trusteeship willing to serve all alike who are desirous of having such use made of their surplus wealth."

The first of the community trusts is still less than ten years old. The funds of most of them will be many years in materializing. Their justification, like Rome, will not be builded in a day—or a decade. But they have, apparently, brought into being a more serviceable system than has existed:

For making easily possible and generally popular the establishment of funds large or small, to be used as a common trust for the benefit of the community;

For safeguarding the investment and income of these benefactions by expert and permanent trustees;

For guaranteeing the effective distribu-



tion of these trust funds to meet the needs of each generation, under the direction of an impartial group so selected as to reflect business prudence, civic progressiveness and popular responsibility.

They will serve the dead by assuring to bequests a form of sympathetic trusteeship not otherwise obtainable. They will serve the living by directing the use of accumu-

lated resources to meet present and pressing social needs, rather than the obsolete demand of some forgotten past. That is a program and a promise deserving the designation given by the former Chief Statistician of the Army General Staff, Colonel Leonard Ayres, to the community trust—"the most important single contribution of our generation to the art of wise giving."

## Uniform Rather Than Limited Tax Exemption

By William N. McNair

Attorney at Law, Pittsburgh, Pa.

**O**PPPOSITION in New York to the continuance of tax exemption on new buildings is not surprising to close students of taxation. Under the existing law thousands of buildings have been or are being erected which are partially exempt from taxation for ten years. The owners of these buildings capitalize this exemption. In the real estate columns of the papers we see most prominently featured the words, "Tax Exempt." Buyers will pay more for these exempt houses than for homes in the same neighborhood without this preference.

Now what is the attitude, the natural feeling, of the owner of one of these properties towards the continuing of the tax exemption law? As long as no more tax exempt houses come on the market, his advantage remains. Let the law be renewed from year to year and new houses will be built so rapidly that his advantage disappears. The result is naturally a strong pressure not to renew the exemption.

The present New York law, while tending in the right direction, is not uniform. It gives certain advantages which can be retained only if the law is repealed. A uniform exemption on all buildings, on the other hand, would not bring about such a situation. It would not bestow any special privilege. The Wisconsin Legislature of 1923 passed a law exempting all homesteads to the extent of \$500. Even better than this is the Pittsburgh plan, which requires full assessments but lowers the millage on buildings. All buildings benefit equally, and no favored class exists. The rate on buildings is now 12 mills and on land 20.

All Pittsburgh property owners who have improved their holdings are anxious to have

the law continued. At several Legislatures some of the large estates of the city tried to have it repealed because of the increased taxes on their vacant lands, but these efforts failed because of the opposition from the small home owners of the city. In the recent election of councilmen no candidate favored the repeal of the law. After 1925 the rate on buildings will be lowered to 50 per cent of that on land.

At the last Legislature the Allied Boards of Trade of Allegheny County had a bill introduced applying the plan to school taxes. This bill was reported favorably from committee and would probably have passed, but the attorneys for the school board requested its postponement until the next session. It appears that school districts are classified differently from cities, Pittsburgh being in a second class as a city and in a first class as a school district. This places Pittsburgh with Scranton as far as city laws are concerned and places it with Philadelphia with respect to school legislation. The law which was introduced applied only to Pittsburgh. The attorneys thought this might affect its constitutionality and felt that the plan ought to apply to school districts of the first class. This change will be made in the new bill, and it is believed that sentiment in Philadelphia will support the application of the plan to school taxes in that city.

City planners who desire to develop their community, encourage building, or lower rents by exempting improvements, might well consider the experience of New York and Pittsburgh. For permanent results, a uniform and equal exemption is better. We feel that so far Pittsburgh's graded tax plan has not been improved upon.

# Improvements in Street Lighting in Tacoma, Wash.

Concrete Standards and 400-Candle-Power Incandescent Lamps Improve Lighting Efficiency

**D**URING the last year the greatest gain in street lighting in Tacoma, Wash., has been in the installation of 400-candle-power Mazda lamps on concrete standards, as illustrated in the photograph. This recent installation is on South Yakima Avenue and is an example of the type of standards used all over the city except in the business district.

In this installation the posts are spaced four to the 300-foot block and staggered so as to distribute the light. The lights are about 11 feet above the sidewalk, which is believed to be the height best suited to Tacoma conditions, because of the ornamental appearance of the standards and the help the height gives to the auto driver during fogs. The diffusion of the light effected by the type of glass used, does not throw all of the light on the pavement, but the light which goes toward the sky aids in the general lighting of the district by reflection. The effect of the reflected light was noticeable on the unlighted streets by its absence during last winter's power shortage, when all street lights were turned out for most of the night for a few days.

The cost of installing these ornamental standards is borne by the property owners benefited, but the up-keep and operating costs are paid from the city's general funds. The cost of the system is about \$20 for each 25-foot lot, and as the payments can be extended over five years, the improvement of the property by adding this lighting system is progressing rapidly. The property owners take the initiative and present petitions for the installation of the lighting

system on a street or throughout a district at one time.

## The Concrete Standards

The concrete lamp-posts have several unique features. No foundation is required, because the concrete shaft is extended 3 feet below the base and the pole is set in the same manner as a fence post. No cut-out door is required in the base, because the pothead is located in the cast iron cap at the top. The concrete shaft is reinforced with vertical rods and built around a 1½-inch conduit which terminates in a bend just under the surface of the ground. The cast iron cap is fastened onto this conduit at the top with a lock nut. The appearance of the pole is very pleasing, and especially so when painted with gray concrete paint. The concrete shafts are poured in a vertical position with a dense concrete mixture in cast iron forms.

Ordinarily, these lamp standards are spaced four to the 300-foot block staggered and are connected with 600-volt parking cable, 15 or 20 on the circuit, depending upon whether 400- or 250-candle-power lamps are used. The standard street series sockets are mounted in the cap, and the whole circuit is connected with the overhead street-lighting system of the city through series transformers, or they are connected with a 2,300-volt primary

network through a movable coil series transformer and are turned on and off by an automatic switch actuated by the street lighting system.

The concrete lamp standard has been used by the city for about six years. It first



**TYPICAL CON-  
CRETE LIGHTING  
STANDARD IN  
TACOMA, WASH.**



CONCRETE BOULEVARD STREET-LIGHTING STANDARDS IN TACOMA

came into use because of the high price of cast iron during the war. It became necessary to double the number of standards on the down-town streets, and as the old standards were already made of cast iron, it was necessary to imitate it as nearly as possible with the concrete. The post described above was finally designed and

put in place and painted black to match the rest of the standards on the street. The concrete was of such a dense and smooth nature that it was only by special examination that the concrete posts could be distinguished from the cast iron posts. After the war an examination of these posts showed that they were wearing very well, and therefore more of them were installed in other districts. Recently they have been painted gray instead of black, and they make a much more

pleasing appearance. The posts are manufactured according to the city specifications by contract, in batches of 600 or more, by Fred Randolph Smith, a Tacoma concrete specialist. We are indebted to Llewellyn Evans, Superintendent, Electric Works, Department of Light and Water, Tacoma, Wash., for the material for this article.

## Snow-Removal Equipment in Use

### Abstracts of Reports from Cities in the Snow Belt

THE interest which has been shown by readers of THE AMERICAN CITY in the snow-removal articles published this fall has brought about an investigation of the actual equipment used in a representative group of cities. The material appearing below is abstracted from some of the more complete reports:

*Covington, Ind.*—One home-made snow-plow is used in Covington, to handle all of the snow-removal work, according to Charles A. Baldwin, Clerk and Treasurer.

*Evansville, Ind.*—It is seldom that the snow is heavy enough in Evansville to justify maintaining any special equipment for snow removal. However, fourteen Studebaker dump-wagons, which are a part of the regular street cleaning equipment, and one flusher are used when necessary, according to Julius O. Artis, President, Board of Public Works.

*Macomb, Ill.*—One crawler tractor comprises the whole of the snow-removal equipment in this city, as reported by John Graves, City Clerk.

*Emmetsburg, Iowa.*—George H. Baker, Chairman, Board of Councilmen, reports that only hand shovelers are employed in snow-removal work.

*Andover, Mass.*—F. L. Cole, Superintendent of the Highway Department, reports that the city has nine snow-plows and one horse-drawn wagon, but that they hire all of the plow work and breaking-out done for the city. They are purchasing three plows for motor trucks to facilitate snow removal.

*Northbridge, Mass.*, has one 5-ton Holt Caterpillar tractor and one snow-plow to handle the removal of snow during the winter, according to W. L. Carrick, Superintendent of Streets.

*North Adams, Mass.*—A Pierce-Arrow 5-

ton truck, one snow-plow and two horse-drawn wagons comprise the snow-removal equipment of North Adams, Mass., according to the report received.

*Reading, Mass.*—Blade snow-plows to be attached to 5-ton trucks are furnished by the town for trucks owned by local stores. The town has two Autocars, one Cletrac, one snow-plow and eight horse-drawn wagons for snow removal, according to H. B. Collins, Superintendent, Board of Public Works.

*Iron River, Mich.*—According to Edward P. Lott, Highway Commissioner, the township owns two Monarch tractors, which are used on the roads during the summer and for snow removal in winter.

*Munising, Mich.*—Ed. Levy, Commissioner of Public Works, reports that the city rents a 10-ton Holt tractor from the County Road Commission and owns one Levy patent plow. A Peck truck plow attached to a GMC truck is used for snow removal, and the sidewalks are taken care of by snow rollers.

*Newberry, Mich.*—E. C. Underwood reports that the town of Newberry uses its Monarch tractor under unusual conditions in smashing snow in soft, swampy places. They take 2 x 9-inch hard maples and cut them in 2-foot lengths, letting the pieces project 1 inch on the inside and 11 inches on the outside of the track, and fasten them with four  $\frac{3}{4}$ -inch bolts and put two  $\frac{3}{8}$ -inch bolts, 9 inches long, through the pieces

sideways. The machine has been used where neither man nor horse could possibly travel and has been particularly successful.

*Wakefield, Mich.*—Two snow-plows and all of the necessary tools and shovels for snow removal comprise the equipment of this town, according to Frank E. Hook, Commissioner, who reports that one 10-ton tractor is being purchased to supplement the equipment for the coming winter.

*Niles, Mich.*—Six snow-plows of local make are used to handle the entire snowfall. Report of V. N. Taggett, City Engineer.

*Fergus Falls, Minn.*—The snow-removal equipment of this town consists of four home-made snow-plows, according to P. M. Bee, Chairman, Street Committee.

*Rahway, N. J.*—In addition to a snow-plow attachment for a truck which is being purchased this winter, the snow removal equipment consists of one large and one small Federal truck and one Pierce-Arrow and one Baker snow-plow. Report of A. S. Blank, City Engineer.

*Niagara Falls, N. Y.*—Alexander J. Allen, Superintendent of Public Service, reports that the city owns eight White trucks and two GMC trucks, six snow-plows and sixteen Watson dump-wagons, which it uses for snow removal.

*Yonkers, N. Y.*—James Sullivan, Assistant Deputy Commissioner of Public Works, reports that five White trucks and two Mack trucks, five Holt tractors and twelve Champion snow-plows comprise the snow-



AN AVERY ROAD RAZER WHICH EFFECTIVELY CLEANS THE STREETS OF PEORIA, ILL.

removal equipment of the city.

*Van Wert, Ohio.*—Four horse-drawn snow-plows made by the city comprise the snow equipment of Van Wert, according to E. O. Hughes, Director of Public Service.

*Oberlin, Ohio.*—W. F. Schickler, City Engineer, reports that one Ford, one snow-plow and a horse-drawn wagon comprise the snow-removal equipment.

*East Cleveland, Ohio.*—Paul B. Wilcox, Assistant City Manager, reports that two Fords which are used by the street department throughout the year for various work, are used for snow removal in winter; one Fordson tractor will be used for the first time this winter with a grader as a snow-plow on streets; and two horse-drawn wagons which are used by the street department throughout the year, make up the snow removal equipment. East Cleveland uses V-type snow-plows, drawn by one horse, to clear the sidewalks and some of the streets. This year the tractor will help. They only clear the snow from in front of stores. The street car company uses an electric sweeper, which opens a large portion of the down-town streets.

*Spokane, Wash.*—According to Leonard

F. Works, Commissioner of Public Works, the city owns twenty-five motor trucks (Spokane, White and GMC) three tractors (Holt and Yuba), and one Holt snow-plow. Horse-drawn wagons are hired from local contractors as required. The city also owns one gutter plow designed and made by the city.

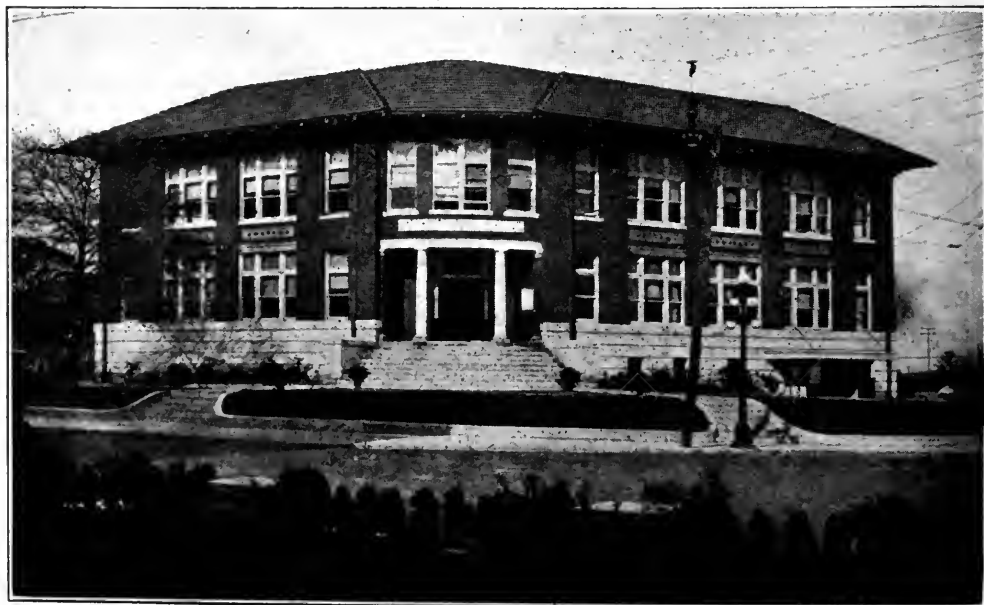
*La Crosse, Wis.*—According to a report received from La Crosse, the entire snow-removal equipment consists of three snow-plows.

*Milwaukee, Wis.*—Charles O. Davis, Superintendent of Streets, reports that the city owns ten 5-ton Kelly, Sterling and Mack trucks, ten Baker and Champion snow-plows and a number of 3-yard Ward wagons, in addition to two 3-foot two- and four-horse road graders, which it uses for snow removal.

*Mineral Point, Wis.*—T. H. Gaven, Chairman, Street and Sidewalks Committee, reports that one motor truck and one horse-drawn wagon are used for snow removal in that city.

*Rhineland, Wis.*—Arthur O. Rendell, City Engineer, reports that one 5-ton Holt tractor and snow-plow is used to handle all the snow-removal work in the city.

## Municipal Building That Serves Many Purposes



THIS CITY HALL, OF LAUREL, MISS., HOUSES THE MAYOR, COMMISSIONERS AND OTHER CITY OFFICIALS, THE FIRE DEPARTMENT, POLICE COURT, CHAMBER OF COMMERCE, AND PUBLIC LIBRARY

# Roadway Surfacing and Maintenance in Newton, Mass.

The Problem of Grades Where Roads Are Constantly Built Up by Maintenance

THE more heavily traveled roads in Newton, Mass., are surfaced with bituminous macadam averaging  $3\frac{1}{2}$  to 4 inches in thickness, constructed by the penetration process, using as a binder bitumen of either tar or asphaltic composition, laid on old macadam or gravel roads as a base. The lighter-traveled streets are water-bound macadam or gravel covered with a blanket coat of asphaltic oil or light tar, and sanded. The city has sufficient mileage of these two types of surfacing so that the cost of construction of the former and the maintenance of both types may be taken as representative.

The following table shows for a period of years the amount and costs of new bituminous surfacing, repairs and patching (exclusive of cleaning) of all the city's public ways, and the sprinkling of the larger portion of its streets. The average yardage of the roadways is about  $2\frac{1}{2}$  square yards per lineal foot. The city has 153 miles of public ways, including 43 miles surfaced with bituminous macadam:

COST OF SURFACING, REPAIRS AND SPRINKLING

Year	Bituminous Macadam Resurfacing		Repairing and Patching		Sprinkling	
	Sq. Yds.	Cost Per Sq. Yd.	Miles	Cost Per Mile	Miles	Cost Per Mile
1913.....	49,600	\$0.41	...	.....	80	\$275.00
1914.....	71,105	0.55	144	\$162.00	86	300.00
1915.....	52,092	0.62	145	179.00	90	348.00
1916.....	54,657	0.74	145	223.00	90	342.00
1917.....	42,771	0.98	148	244.00	97	420.00
1918.....	.....	.....	148	309.00	112	383.00
1919.....	14,077	2.13	149	358.00	112	470.00
1920.....	48,526	2.34	150	277.00	119	492.00
1921.....	22,166	1.93	153	263.00	121	454.00
1922.....	28,378	1.56	153	236.00	123	374.00

The method of maintenance on both the penetration roads and those having blanket surfacing is to fill the holes with the usual mixture of stone and bitumen. This patching is continued as needed, until further work of that nature is inexpedient, when a new pavement is built.

The term "sprinkling" is applied to the treatment the roads receive outside of patching maintenance and consists usually of not more than one application per year of 45 per cent asphaltic oil or light tar covered with sand, the two types of mate-

rial being used in about equal amounts. The cost of this work is assessed on the abutting property, the rate varying from 3 to 5 cents per lineal foot of frontage from year to year.

According to Edwin H. Rogers, City Engineer, Newton, Mass., in the *Journal* of the Boston Society of Civil Engineers, Volume X, No. 5, the city has experimented with practically all commercial road surfacing materials which it has seemed expedient to try, and at present uses for its penetration work bitumen of asphaltic composition to a somewhat greater extent than tar preparations, as it appears that the cost of maintenance of the former is somewhat less, although detailed records are not kept. Non-asphaltic oils were used to some extent in previous years on lateral residential streets, but these materials are not now employed in such work. Light non-asphaltic oils are now used only as dust-layers on the paved tracks of the street railways and on such tracks as are not in a grassed reservation but are surfaced with gravel.

The matter of grades is a problem. In the old water-bound macadam or gravel days the roads were worn down by attrition from iron-tired wheels and horses' hoofs. Now that the streets are not so worn down, patching and sprinkling with oil and sand constantly raises them. When they are resurfaced, the new surface is usually thicker than that of the old, for usually a better foundation results from removing but little of the old material, while the saving in cost is an essential consideration. This gradual raising of the roadway grade destroys its

proper relation to the sidewalk grade, and it is found advisable in many cases to keep the new sidewalk at a grade of sufficient height above the roadway so that a

proper cross-section will result after future repair or resurfacing of the roadway is done to a limited extent and has raised the roadway.

## The Cost of New Sewers

Data from Oak Park, Ill., a City of 40,000 Population

**I**N Oak Park, Ill., the total length of main and lateral sewers in the sewer system amounts to 78.94 miles, of which 7.63 miles are brick from 24 to 84 inches in diameter, 70.67 miles are of vitrified pipe from 6 to 36 inches in diameter, and 0.64 miles are of concrete 6 feet in diameter.

On Euclid Avenue, 708 feet of 12-inch sewer cost \$2,500, and 710 feet of 12-inch sewer on Linden Avenue cost \$2,600. Plans are now being prepared by the Department

of Public Works for the construction of new sewers and relief sewers in the section of the village between North Boulevard and Chicago Avenues and Harlem Avenue and Forest Avenue. The present sewers in this section of the town are too small and some of them are not at sufficient depth. The plan is to build new sewers and connect them to the Sanitary District relief sewer in Chicago Avenue. This will be a needed and permanent improvement.

TABLE OF EXISTING SEWERS

Pipe Sewers, Size, Inches	Length, Feet	Circular Brick Sewers,		Egg-Shaped Brick Sewers,		Manholes, No.	Catch-Basins Number,	
		Size, Inches	Length, Feet	Size, Inches	Length, Feet		Brick	Iron
6.....	1,780	24	3,134	30 x 20	890	2,756	2,919	233
9.....	60,791	30	2,921	36 x 24	2,495			
12.....	212,939	33	1,320	36 x 26	665			
15.....	47,414	36	3,165	42 x 30	650			
18.....	18,911	40	660	48 x 32	1,330			
20.....	20,726	44	1,330					
22.....	1,945	45	2,450					
24.....	6,191	45	2,610					
30.....	1,450	50	3,405					
36.....	992	52	5,830					
		54	2,200					
		84	5,250					
Totals.....	373,139		34,305		6,030	2,756	2,919	233
Totals.....	70.67 miles		6.49 miles		1.14 miles			

6-foot concrete sewer in Chicago Avenue, 3,370 feet—.64 miles.

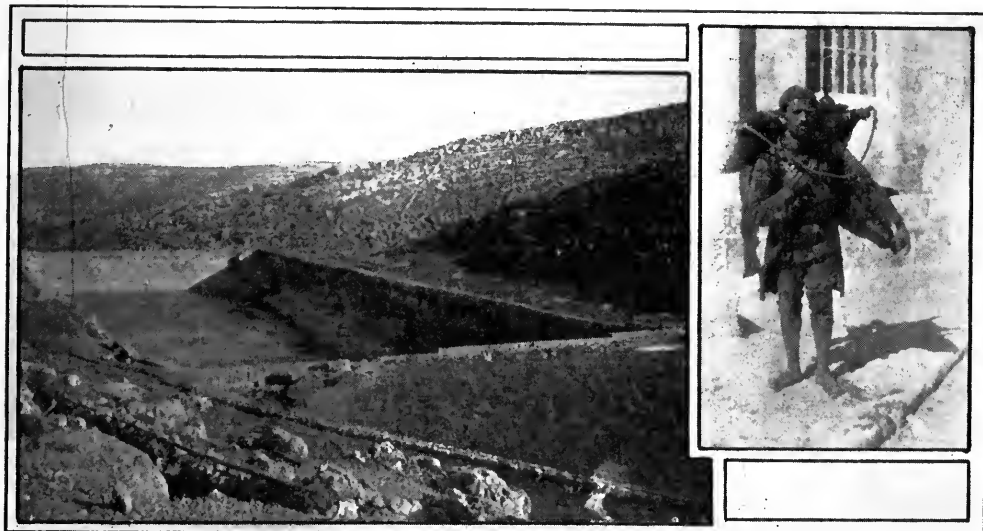
## Water-Supply Conditions in Jerusalem

Growing Population and Accelerated Building Industry Make Water Situation Acute

**T**HE question of water-supply for the city of Jerusalem, Palestine, is an extremely important subject at this time, because of the acute water shortage. Jerusalem is situated far up on the Judean plateau, 3,000 feet above sea-level, and receives rain only four months of the year, averaging approximately 26.2 inches per annum. With a growing population and an accelerated building industry, due to the Zionist movement, the need of water is becoming more and more acute. Practically all rain falls in winter, from November to March, inclusive, and by means of cisterns it is carefully caught and stored for use during the dry season.

The sale of water to those not fortunate enough to have their own catch-basins constitutes an arduous, yet lucrative, business to many natives. An attempt has been made, with only fair success, to bring the water from reservoirs situated ten miles south of Jerusalem, known historically as the Pools of Solomon, to supplement the supplies existent in the cisterns of the city. Although these pools bear the name of King Solomon, there is little reason to believe that they were actually connected with his reign, just as the Tower of David has nothing to do with David and the Mosque of Omar was begun years after that Caliph was in his grave. There is, however, every





**PARTS OF THE OLDER WATER-SUPPLY SYSTEM OF JERUSALEM**  
At left.—One of the ancient Pools of Solomon. At right.—A water carrier

reason to suppose that these great reservoirs existed in the time of King Herod. They were repaired under the Sultan Suleiman the Magnificent in the sixteenth century, and it is possibly from that fact that they derive their present name.

The source of the water is in the cavern at the head of the Wadi Biarfi, five kilometers to the south of this spot, and the water comes through one tunnel cut for  $3\frac{1}{3}$  kilometers through the rock, and through another 500 meters in length. Shafts were sunk from the surface to render these tunnels accessible, and the engineers have cleared hundreds of tons of earth from these shafts and tunnels in

order to make the flow of water possible. Much repair work has been done to two of these pools, and many engineering difficulties have been overcome. The work on the third pool is for the present postponed. The three together will hold 40,000,000 gallons of water, equal to three months' supply for the whole city. The engines which have been installed formed part of the plant for the desert pipe line which brought water from the Nile for Lord Allenby's armies.

We are indebted to George C. Cobb, American Vice-Consul in Charge, Jerusalem, Palestine, for the information contained in this article and for the illustrations.

## **Cost of Residential Street Paving in Fitchburg, Mass.**

**Data on the Construction of Bituminous Macadam on a Gravel Base**

**B**ITUMINOUS macadam with 6 inches of trap rock on a good gravel base has given such excellent results in years of service in Fitchburg, Mass., that this type may well be considered as standardized for residential streets and main arteries leading to surrounding towns, according to David A. Hartwell, City Engineer, in the *Journal* of the Boston Society of Civil Engineers, Volume X, No. 5. Nearly a mile of road of this type is laid each year. The cost per mile with a width of 18 feet

varies from \$22,000 to \$25,000, depending on the length of haul, cost of material and local conditions. In 1921, macadam of this type was laid in the main road between Fitchburg and Ashburnham for a distance of 5,372 feet at a cost of \$2.36 a square yard. This cost includes 43 cents a yard for excavating and subgrade, 17 cents for culverts, guard-railing and miscellaneous work, and \$1.76 for material and labor for macadam. The average length of haul on this job was  $1\frac{1}{2}$  miles.

# A County Hospital in a Missouri Town

An Investment That Pays Big Returns in the Health, Welfare and Happiness of Boone County

By Frank G. Nifong, M. D.

Columbia, Mo.

**B**OONE COUNTY, Missouri, has a population of more than 30,000. Columbia, a town of about 12,000, has a student population of about 5,000 during the college season. We felt the need of hospital service for the rural population particularly, for the University of Missouri has only a small hospital serving the students and some of the citizens, and this situation simply accentuated our need. How might we get a hospital? In 1916, we saw in *The Modern Hospital* a notice of a county hospital law in Iowa and Indiana. We secured the Iowa statute and had it introduced, slightly modified, in our Legislature, and it became our law in 1917.

This law provides that any county may vote bonds and a tax for the erection and maintenance of a county hospital. A petition with 200 names subscribed, one-half in the county and the other half in the town in which the hospital is to be erected, is presented to the county court, and the court calls an election. Our constitution makes it necessary that a two-thirds majority be obtained for the measure to carry. The first trustees are appointed by the court and afterwards elected at regular elections, two and three alternately. Trustees serve without pay and are non-partisan. The law gives the trustees absolute management, and they may make any rules they see fit, to administer the institution.

All legal practitioners of medicine may practise in the hospital, so long as they obey the rules laid down by the trustees. The trustees may exclude any patient or any physician for infraction of rules. A separate tuberculosis hospital may be built and administered by this board. The county court may apply 5 per cent of the revenue of the county for maintenance if it sees fit. A training school for nurses may be established. This, briefly, is the law.

Immediately after the war we felt more than ever the great need for such a hospital. The neighboring counties of Audrain and Callaway first voted and found they had not asked enough to erect what they needed. They immediately voted for more money and received it. Boone County came next and made the same mistake, for building prices were at the peak. We asked for \$100,000, got the estimate and



BOONE COUNTY GENERAL HOSPITAL, COLUMBIA, MO.,  
AND GROUNDS



### BOONE COUNTY GENERAL HOSPITAL, MISSOURI

Left—Corner of lobby  
Below—The solarium



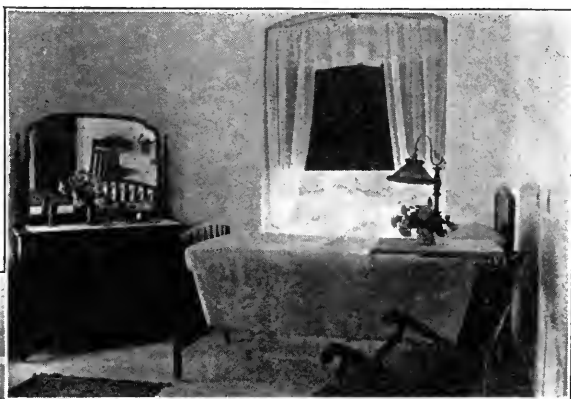
found that we needed more. We asked for an additional \$75,000 and received it, and then contracts were let for the plant. The assessment now is  $1\frac{1}{4}$  mills, or \$1.25 per thousand, which is not heavy. There are now three beautiful hospitals in the three adjoining counties of Audrain, Boone and Callaway.

The buildings of the Boone County hospital were completed and opened December 15, 1921. In the first year of service 600 patients were received. During the second year at the present rate of entrance perhaps 900 or 1,000 will be received. There is a superior culinary service, and an X-ray department which does daily service for house patients as well as for outside patients. The laboratory does all the fundamental work, and this is supplemented by having the Wassermanns and the pathological sections done by the medical department of the Uni-

versity of Missouri. This hospital is by law an "open hospital," and all legal practitioners have entrée.

### Dangers Which Arise in Small Hospital Administration

Many dangers may be pointed out which might easily arise—petty politics and lack



### BOONE COUNTY GENERAL HOSPITAL

Above—Patient's room  
Left—The kitchen



of vision, inefficiency in management, and such things. It is extremely important that the board of trustees be men of character and capacity. Our counties have been most fortunate in having men of high class and character appointed by the courts. It has been very gratifying to medical men to see the interest and enthusiasm displayed by this board of trustees. We are convinced that with a little care we may always have men on these boards who will serve their people as disinterestedly as would a most ethical doctor.

The selection of a superintendent is a difficult problem, and it gave the trustees more concern than anything else. They were fortunate in securing a woman superintendent of unusual ability, one with the ideals that will go far to show the way and the good sense that will work out problems in the most practical manner. The superintendent of a hospital must deal with all kinds of doctors, as well as with all kinds of patients, and she should be a master in diplomacy. Add to this the management of a nursing staff of variable capacity, the employment of common help of all grades of efficiency, running what is at once a hotel of superior quality and a house with all the technical services and appurtenances of a hospital besides, and it will readily be seen that exceptional ability is required.

No hospital is really worthy the name without a good working staff. We have undertaken to solve that most important problem through the machinery of regularly organized medicine. The Boone County Medical Society supplies the staff—a volunteer visiting staff. Individual members of the Medical Society have volunteered to the trustees to take over the various divisions of service, pledging themselves that they will care for all indigent patients and for all patients for whom payment is made, whether by individuals, churches, lodges or the County Court. They also pledge themselves to serve in the out-patient department when that may be established.

#### **Staff Organization**

The hospital is regularly organized with a chief of staff, vice-chairman, secretary, advisory committee, etc. There is a quarterly alternating service in internal medicine, general surgery, obstetrics, pediatrics, genito-urinary and skin, gynecology,

X-ray and laboratory, consultants on pathology, physiology and X-ray. Lectures are given on public health and preventive medicine and there are volunteer inspections of public school children. The executive committee of the staff acts in an advisory capacity to the trustees and superintendents, and the chief of staff is an ex-officio member. During the present year our out-patient department has been functioning successfully. The poor of the town and even of the remoter parts of the county come twice a week for treatments, when the entire staff serves them, and on other days by appointment when necessary. This is probably the first rural free clinic in this country.

Under this plan we are using regularly organized medical men as our working staff. We volunteer as a unit and exclude thereby irregular, inefficient service. We also assume the responsibility of giving the best service, and it is up to the County Medical Society to make good. Every member of the County Society has equal opportunity; there is no discrimination. It promises to become a matter of the survival of the fittest, or at least of the "workingest."

So far the arrangement has worked admirably and all are entering into the work with great enthusiasm. A higher standard is steadily being set and improvement is noted all along the line. Staff meetings are held each month in which we review our cases and the work of the hospital. Everything for the good of the service is discussed. A monthly report is furnished from the office of the superintendent. Each death is particularly inquired into, and criticisms are both mercilessly and cordially made. We have a large room set aside on the fourth floor for staff meetings and for the meetings of the County Society. Here also may be held such meetings as mothers' clubs, and the inspecting and teaching of school children in matters of health. A lantern and moving picture machine has been installed, which will help in efforts to educate the children as well as the medical staff.

#### **The Educational Program and the Future**

We desire to make the Boone County Hospital function as an educational force—a center from which will radiate every kind of activity that will promote health and well-being. All the school children from

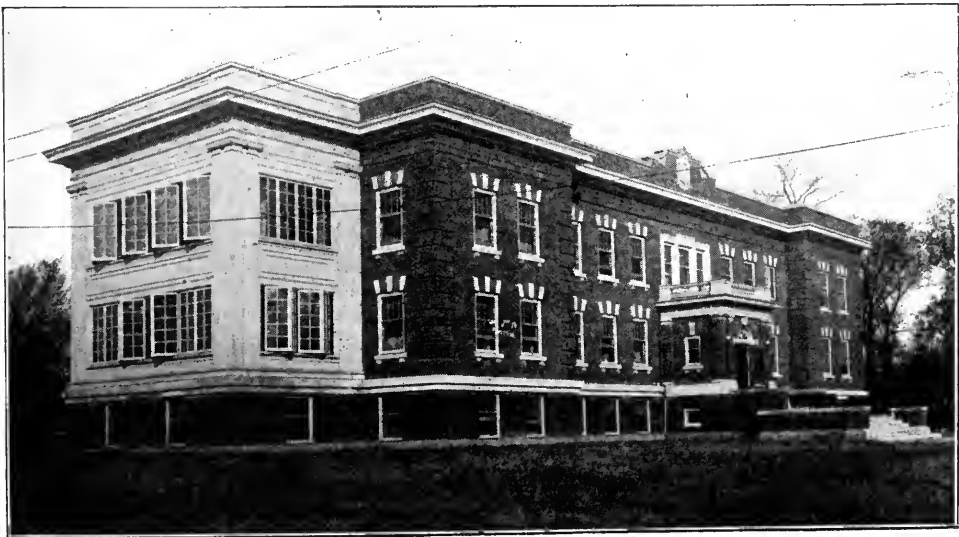


AUDRAIN COUNTY GENERAL HOSPITAL, MEXICO, MO.

our rural schools should be inspected here, and it is hoped to begin this inspection soon. While the children are there, they can be taught some of the elements of medicine and the rules of good health. This is both easy and practical now, especially with the aid of visual education.

This briefly outlines some of our program and some of our problems. We contemplate having, in time, a nurses' training school or perhaps a school for training nurses' assistants. At present we are

using only graduate nurses. Our rates are exceedingly low, being from \$2.50 per day for the county patient to \$6 for the choicest room and bath, such as one would have to pay \$10 or \$12 for in a choice metropolitan hospital. These rates may have to be revised upward, especially if the county cases are very numerous. The revenue from the mill tax amounts this year to nearly \$50,000. About \$16,000 must be used for sinking fund and interest. This makes about \$30,000 available for mainte-



CALLAWAY COUNTY GENERAL HOSPITAL, FULTON, MO.

nance and buildings. It is to be hoped that this, added to the income from pay patients, will make it possible to break even at the end of the year. The law makes provisions for the acceptance of gifts. No doubt they will be needed. They will certainly always be welcome, as it is the desire not only to give the best service possible, but to render it to all classes of people.

We are also thinking of the future and of the increasing population. The grounds are close to town and are about four acres in extent, allowing plenty of room for expansion. The buildings are also planned for expansion, so that when additional wings are constructed, we may add 75 beds,

and again 75, and ultimately have a 200-bed hospital. There is also room for a pavilion for infectious diseases, something much needed in a college town. An old residence on the property has been made into a nurses' home, to be used until such time as a modern one may be built. In building and equipment, up to this time, about \$225,000 has been expended.

Hospitals are somewhat costly, but we must have them, even in the country. No investment pays bigger returns in health, welfare and happiness.

EDITORIAL NOTE.—Prepared by permission from an article, "The A. B. C. Movement for Hospitalization in the Counties of Missouri, appearing in *The Modern Hospital* and subsequently revised by the author.

## To Stimulate Club Programs and School Courses in Wise Saving and Spending

By Edith McClure Patterson

Budget Specialist, General Federation of Women's Clubs

**T**O release a larger share of time and energy for culture and good citizenship, a first essential for most homemakers is a wiser budgeting and spending of the family income. The foundation of true Americanism is laid in the home. Home economics have very much to do with the welfare and growth of our children and the well-being of men and women.

From time immemorial economy and thrift have been preached, but a wrong interpretation has been given these terms. In the public mind they have been interpreted as "closeness," even to the point of stinginess or miserliness. To-day the realization is steadily growing that thrift and economy mean, not doing without, but avoidance of waste and extravagance through wise budgeting and spending.

Realizing these facts, the General Federation of Women's Clubs has organized a concerted movement for more fundamental training in home economics. As part of this program a Budget Specialist has been appointed whose duty it is to give help and information to the clubs in arranging programs on practical finance. But this educational work is not being confined to the housewife alone. The best results can be achieved through incorporating into our public school training a practical education along businesslike lines.

To stimulate the active cooperation of educators and business men in this fundamental educational problem, Frederick B. Patterson, President of the National Cash Register Company, is offering ten life memberships in the National Education Association for the best ten suggestions as to what may be injected into our elementary and high school curricula that will tend to develop habits and understanding of better business methods, more intelligent buying, and more efficient spending. The Mutual Savings Bank Association of America has offered \$1,000 in a similar contest.

Bankers, merchants, and business men generally have shown a great deal of interest in this educational movement. The vision of the American educator sees the approach of the day when women will know how to manage the home purse and divide the money more wisely; when the children of to-day will take their places in the world better prepared to meet its problems; when our public schools will graduate our children with an education that shall combine the practical, the cultural and the civic in more nearly ideal proportions. When that day comes—and it is on its way—the general community standards of living will be raised, and much of our worry, lack, and sickness be replaced by contentment and prosperity.

# Who Furnishes the Stakes and Grade Boards?

Data from a Widely Scattered Group of Cities, of Interest to Engineers and Contractors

**I**T is almost universally the case that stakes for giving grades for street, curb and sidewalk work are furnished by the city, while the grade boards used in sewer and water-main work are furnished by the contractor. Specific replies concurring in this statement have been received from Elkhart, Ind., Burlington, Iowa, Bloomington, Ill., Brookline, Mass., Montgomery, Ala., Cumberland, Md., Boise City, Idaho, and Stockland, Calif., with regard to the stakes, and from Elkhart, Ind., Montgomery, Ala., Cumberland, Md., and Boise City, Idaho, with regard to the grade boards.

In Boise City, Idaho, in order to protect both the contractor and the city the grade stakes for curb or sidewalk work are placed 1 foot off the line for the walks and 2 feet for curbs, thus leaving the grade stakes as set by the engineer undisturbed for future reference, should there be any error in setting the grade. If stakes are missing and the work is found to be inaccurate, the blame is placed on the contractor, on the assumption that he has removed the grade stakes intentionally to avoid checking up on his work.

The city of Stockton, Calif., furnishes and sets all stakes and grades required by the contractor in the prosecution of his work. In street work it has been found that this sometimes requires two or three settings for stakes, which the city feels is possibly too liberal, as it has been found that some contractors are not as careful as they should be in preserving stakes and monuments.

In Cumberland, Md., no charge is made for furnishing and setting the stakes which are necessary to carry out the plans and grades as called for in any specific job, the first time, but should any stakes be moved or knocked out through negligence or carelessness on the part of the contractor's men, the specifications require the contractor to pay \$1 each for all stakes replaced.

In Brookline, Mass., although the standard form of contract requires that contractors furnish all materials for giving grades, the city engineer's department usually furnishes the short stakes, the contractor supplying any stakes more than 2 feet in length which may be required on city contracts.

## Road Salvaging with Surface Treatment

Resurfaced Gravel and Water-bound Macadam Roads Carry 90 Per Cent of the Traffic in Davidson County, Tenn.

**A**CCORDING to a report of J. G. Creveling, Chairman of the Davidson County Highway Commission, Tennessee, resurfaced gravel and water-bound macadam roads comprise 26 per cent of the county system and carry 90 per cent of the traffic. These roads have been resurfaced with a substantial thickness of water-bound macadam, the fine aggregates being rather sparingly used and the coarse stone rolled before the fines are added. After permitting traffic to use the road until it is well

compacted and the excess fines have been pushed off,  $\frac{1}{2}$ -gallon of heavy Mexican asphaltic road oil per square yard is applied and immediately covered with a special crushed river gravel, about 400 yards per mile of 20-foot width.

They use every bit of value in their old roads and build from start to finish without detouring traffic. The cost is lower and they can make more progress, and the road stands up well under traffic, which on certain roads reaches 2,000 vehicles per day.



Roads built during 1916-1917 and since are still in fair condition without re-oiling. Immediately after a road is completed, it is placed in charge of a patrolman, who gives it regular attention. One man with a mule and wagon takes care of about 20 miles of oiled road. This work costs about \$150 per mile per year for labor and material used.

As the surface-treated road gets rough or wavy, it is scarified, reshaped and re-

oiled at a nominal cost, with the use of  $\frac{1}{4}$ -gallon instead of  $\frac{1}{2}$ -gallon of oil, making a road that is better than when first treated. Mr. Creveling states that they have re-oiled less than 10 per cent of the roads thus far. They estimate that on the main roads, which average from 800 to 2,000 vehicles per day near the city down to 200 near adjoining counties, it costs less than  $\frac{1}{2}$ -cent per vehicle-mile to build and maintain this road.

## Missouri Develops New Type of Road

### A Sledged Stone Base Adopted as Standard for Bituminous Roads

A SLEDGED stone base with penetration macadam or asphaltic concrete surface has been adopted as a standard type of construction by the State Highway Department of Missouri. On the porous, easily drained soil in large sections of the state, these bases are being laid at an appreciable saving and are standing up in an excellent manner. Quarry rock that is too soft to provide a crushed stone can be readily applied to the sledged base. Both limestone and sandstone have been used with success.

Missouri is rich in local materials, and the Highway Department has embarked upon the policy of utilizing these materials as much as possible so as to cut down the cost of highway construction. In large sizes, the sledged stone

is less objectionable, it is declared, than when stone is crushed. The large stones break down very slowly because of internal movement of the fragments when subjected to heavy traffic. The large stones during construction are bound together and interlocked by sledging, after which the interstices are filled with spalls, small stones and screenings. The whole is then rolled firm and smooth. On this base any type of bituminous surface can be laid.

In contracting for sledged stone base the practise in Missouri is to pay a unit price per cubic yard for a  $\frac{1}{4}$ -mile haul, and an additional price for each additional  $\frac{1}{4}$ -mile haul. Measurement is made at the point of delivery. The price includes loading, unloading, sledging and rolling.

## England to Increase Width of Roads and Streets

COUNTRY roads and city streets to be laid out in Great Britain will have a right of way 120 feet wide in most instances, and 100 feet wide as a minimum, if present plans of the Government are carried out. Because motor traffic has made it obvious that the old, narrow country roads are not safe, public enthusiasm in England has greeted the official plans for the widening of existing roads and the establishment of the 120-foot width as the official standard for the future. This widening will probably be carried out with greater ease in England than would such a program in this country, where invariably houses are built almost immediately upon the road instead of set back considerable distances, as is the custom in England.

Long before the war, the highways of England had become rivals of the railways through the use of motor trucks and steam traction en-

gines, often hauling several trailers, each with a capacity of tons. The roads bore this traffic well, and their splendid maintenance has enabled these highways to stand up under a much heavier traffic than 90 per cent of the American roads receive. The plans of the British Government will involve a total of several thousand miles of additional new construction, destined to make London the center of the most adequately roaded section in the world.

The United States, just embarking with governmental assistance upon the construction of an interstate nation-wide primary highway system, will do well to consider the conclusions which an infinitely greater experience has forced upon British highway authorities. While few of our roads need a right of way 100 feet in width at the present time, it is certain that our growing traffic requirements now demand a much greater width than is allowed.

## Collection of Garbage and Wastes in Chicago

DURING 1922, 107,292 tons of garbage, or 47,766 loads, was collected by the Bureau of Streets, Chicago, Ill., and delivered to the municipal reduction plant. The collection and delivery of garbage cost the city \$597,860.69, or \$5.57 per ton, or 21 cents per capita.

In the same year, 2,011,948 cubic yards, or 384,050 loads, of ashes and refuse was collected and hauled to city dumps at a cost of \$2,337,805.09, or \$1.16 per cubic yard, or 81 cents per capita. These figures are quoted from the latest annual report of the Bureau.

# The Flag: How to Display It in Processions and Public Functions

*Every official who has to do with the use of the American flag in or on public buildings, or in connection with any parade or celebration, is desirous of showing proper respect to the national emblem by displaying it in accordance with the best code of flag etiquette. For this reason THE AMERICAN CITY is glad to publish the following code and illustrations, which have been made available by The American Legion Weekly.*

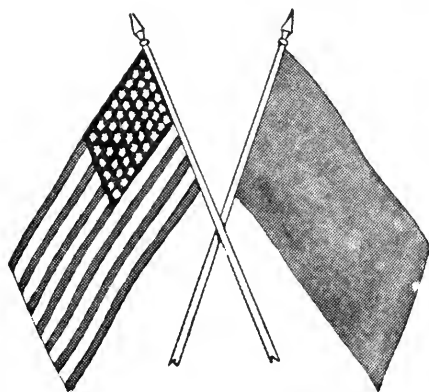
**O**N Flag Day, June 14, representatives of 68 organizations met in Washington for a conference, called by and conducted under the auspices of The American Legion, to draft an authentic code of flag etiquette. While the rules adopted by the conference have no official government sanction, nevertheless they represent the authoritative opinion of the principal patriotic bodies of the United States and of Army and Navy experts, and are binding on all of the organizations which took part in the gathering. The conference constituted itself a permanent body, so that modifications in the rules can be made if this proves desirable. The rules as given below are from the final corrected draft of the code as brought out of the conference:

There are certain fundamental rules of heraldry which, if understood generally, would indicate the proper method of displaying the flag. The matter becomes a very simple one if it is kept in mind that the national flag represents the living country, and is itself considered as a living thing. The union of the flag is the honor point, the right arm is the sword arm, and therefore the point of danger and hence the place of honor.

1. The flag should be displayed only from sunrise to sunset, or between such hours as may be designated by proper authority. It should be displayed on national and state holidays and on historic and special occasions. The flag should always be hoisted briskly and lowered slowly and ceremoniously.

2. When carried in a procession with another flag or flags, the flag of the United States should be either

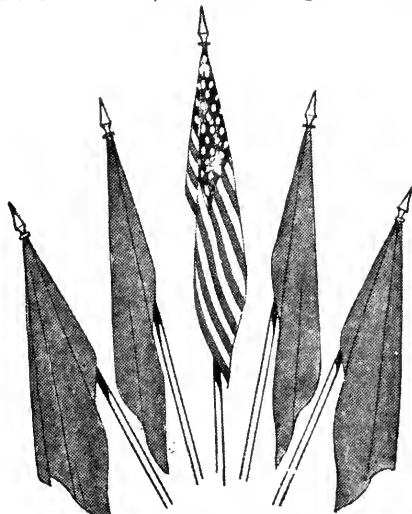
should be on the right, the flag's own right, and its



staff should be in front of the staff of the other flag.

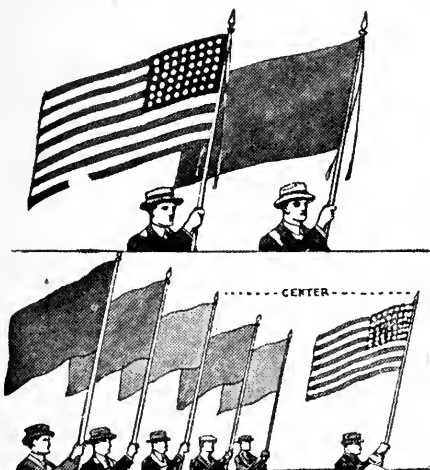
4. When a number of flags are grouped and displayed from staffs, the flag of the United States should be in the center or at the highest point of the group.

5. When flags of states or cities or pennants of societies are flown on the same halyard with the flag of the United States, the national flag should always



be at the peak. When flown from adjacent staffs, the flag of the United States should be hoisted first. No flag or pennant should be placed above or to the right of the flag of the United States.

6. When flags of two or more nations are displayed they should be flown from separate staffs of the same height and the flags should be of approximately equal size. (International usage forbids the display of the flag of one nation above that of another nation in time of peace.)

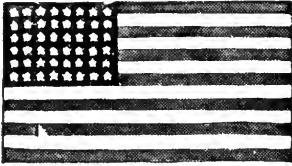


on the marching right, i.e., the flag's own right, or when there is a line of other flags the flag of the United States may be in front of the center of that line.

3. When displayed with another flag against a wall from crossed staffs, the flag of the United States

7. When the flag is displayed from a staff projecting horizontally or at an angle from the window sill, balcony, or front of building, the union of the flag should go clear to the head of the staff unless the flag is at half-mast.

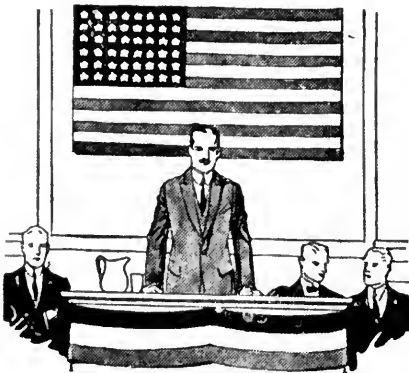
8. When the flag of the United States is displayed in a manner other than by being flown from a staff it should be displayed flat, whether indoors or out. When displayed either horizontally or vertically against a wall, the union should be uppermost and to the flag's own right, i.e., to the observer's left. When dis-



played in a window it should be displayed the same way, that is, with the union or blue field to the left of the observer in the street. When festoons, rosettes, or drapings of blue, white and red are desired, bunting should be used, but never the flag.

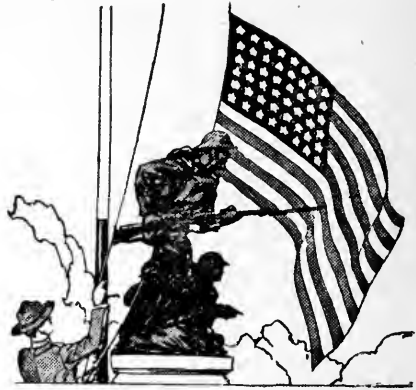
9. When displayed over the middle of the street, as between buildings, the flag of the United States should be suspended vertically with the union to the north in an east-and-west street or to the east in a north-and-south street.

10. When used on a speaker's platform, the flag should be displayed above and behind the speaker.

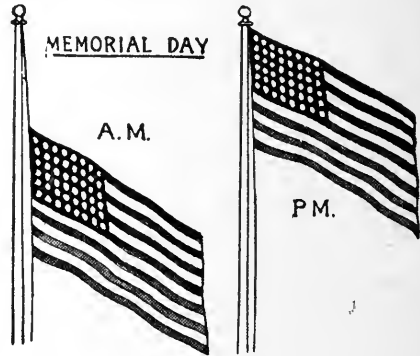


It should never be used to cover the speaker's desk nor to drape over the front of the platform. If flown from a staff, it should be on the speaker's right.

11. When used in unveiling a statue or monument, the flag should not be allowed to fall to the ground but should be carried aloft to wave out, forming a distinctive feature during the remainder of the ceremony.



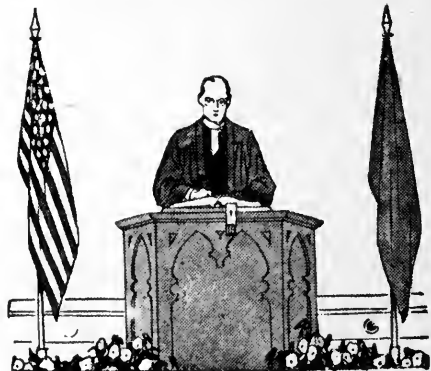
12. When flown at half-staff, the flag is first hoisted to the peak and then lowered to the half-staff position, but before lowering the flag for the day it is raised again to the peak. On Memorial Day, May 30, the flag is displayed at half-staff from



sunrise until noon and at full-staff from noon until sunset, for the nation lives and the flag is the symbol of the living nation.

13. When used to cover a casket, the flag should be placed so that the union is at the head and over the left shoulder. The flag should not be lowered into the grave nor allowed to touch the ground. The casket should be carried foot first.

14. When the flag is displayed in church, it should be from a staff placed on the congregation's right

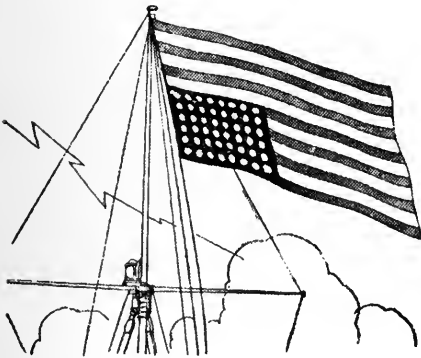


as they face the clergyman. The service flag, the state flag, or other flag should be at the left of the congregation. If in the chancel, the flag of the United States should be placed on the clergyman's right as he faces the congregation, and other flags on his left.

15. When the flag is in such a condition that it is no longer a fitting emblem for display, it should not be cast aside or used in any way that might be viewed as disrespectful to the national colors, but should be destroyed as a whole, privately, preferably by burning or by some other method in harmony with the reverence and respect we owe to the emblem representing our country.

### Cautions

1. Do not permit disrespect to be shown to the flag of the United States.
2. Do not dip the flag of the United States to any person or any thing. The regimental color, state flag, organization or institutional flag will render this honor.
3. Do not display the flag of the United States

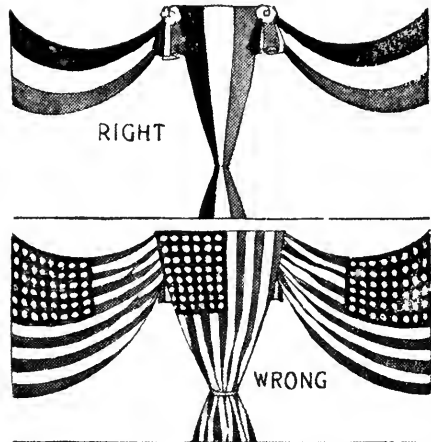


with the union down except as a signal of distress.

4. Do not place any other flag or pennant above or to the right of the flag of the United States.
5. Do not let the flag of the United States touch the ground or trail in the water.
6. Do not place any object or emblem of any kind on or above the flag of the United States.
7. Do not use the flag as drapery in any form whatever. Use bunting of blue, white and red.
8. Do not fasten the flag in such manner as will permit it to be easily torn.
9. Do not drape the flag over the hood, top, sides or back of a vehicle, or of a railroad train or boat. When the flag is displayed on a motor car, the staff should be affixed firmly to the chassis or clamped to the radiator cap.
10. Do not display the flag on a float in a parade except from a staff.
11. Do not use the flag as a covering for a ceiling.
12. Do not use the flag as a portion of a costume or of an athletic uniform. Do not embroider it upon cushions or handkerchiefs or print it on paper napkins or boxes.
13. Do not put lettering of any kind upon the flag.
14. Do not use the flag in any form of advertising nor fasten an advertising sign to a pole from which the flag of the United States is flying.
15. Do not display, use or store the flag in such a manner as will permit it to be easily soiled or damaged.

### Proper Use of Bunting

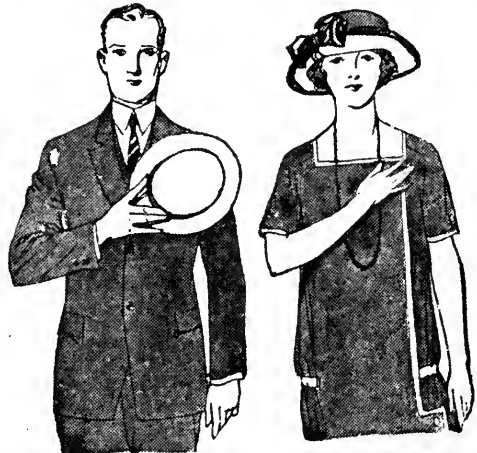
Bunting of the national colors should be used for covering a speaker's desk, draping over the front



of a platform and for decoration in general. Bunting should be arranged with the blue above, the white in the middle, and the red below.

### Salute to the Flag

During the ceremony of hoisting or lowering the flag or when the flag is passing in a parade or in a review, all persons present should face the flag, stand at attention and salute. Those present in uniform should render the right-hand salute. When not in uniform, men should remove the headdress with the right hand and hold it at the left shoulder. Women should salute by placing the right hand over the heart. The salute to the flag in the moving column is rendered at the moment the flag passes.



When the National Anthem is played, those present in uniform should salute at the first note of the anthem, retaining this position until the last note of the anthem. When not in uniform, men should remove the headdress and hold it as in the salute to the flag. Women should render the salute as to the flag. When there is no flag displayed, all should face toward the music.

## Before and After Making Improvements in



Brookland Park Boulevard, Richmond, a 60-foot street,  $1\frac{1}{4}$  miles long, replacing an old country road connecting two high-class residential districts. Within 13 months gas and water mains were laid, sanitary and storm sewers constructed, the street graded and paved, sidewalks laid and ornamental street lights installed



## Brookland Park Boulevard, Richmond, Va.



Over \$250,000 was spent on improving this street, the paving alone costing \$110,000. Property which two years ago could not be sold for \$10 a foot is now readily selling at \$60 to \$70 a foot for high-grade homes. The upper photographs were taken in June, 1922, and the lower photographs in December, 1922





# Bill-Board Advertising

Its Legal Restriction in Massachusetts and Elsewhere

By Horace B. Gale

President, Massachusetts Federation of Planning Boards

IN foreign civilized countries outdoor advertising is generally confined within moderate limits by strict legal regulations. In the United States the enormous growth of the bill-board business, far beyond anything known abroad, has been practically unrestrained, principally because the laws enacted by several legislatures in the first attempts to abate the evil were declared unconstitutional by the state courts. The judicial opinions rendered in these early trials placed limitations on the police power to regulate advertising on private property which are not supported by later decisions; but the advertising companies always had the advantage of able counsel, and the first cases, being decided in their favor and against the states, could not be appealed to the U. S. Supreme Court.

The result was to discourage attempts to restrict such advertising on private property. Legislatures went as far as they thought they could, and prohibited advertising on public highways. But during the past dozen years many municipalities have gone further and put outdoor advertising on private property under substantial restrictions, which have been sustained by the courts under the general police power.

## How Some Cities Regulate Bill-Boards

Such restrictions have been imposed in some places by zoning laws, by the establishment of building lines, by building codes, and by regulations in the interest of public health and safety.

Most of the principal cities of the United States furnish examples of such regulations. For instance, the New York City zoning

law of 1916 bars bill-boards for commercial advertising from residential districts; St. Louis prohibits boards within 15 feet of a street or within 6 feet of a building; Washington, D. C., excludes them from residential sections; the United States Government prohibited bill-boards in the army cantonments, which were in fact cities of 50,000 to 80,000 inhabitants. Los Angeles permits no bill-board larger than 12 square feet (for instance, 3 feet by 4 feet) in residence districts, and nowhere within 50 feet of a dwelling; while in semi-business districts no larger board is permitted, except on written consent of 51 per cent of the property frontage in the block; and no bill-board within 15 feet of another board. In Chicago no bill-boards are allowed above roofs, and no bill-board can be erected in any block

## A Contest of Far-Reaching Effect

In addition to a general outline of progress in bill-board regulation, and of important court decisions, this article contains a summary of the principal arguments put forward at recent hearings in Massachusetts—a contest the results of which will set precedents of far-reaching effect in the restriction of outdoor advertising throughout the United States.

where one-half the buildings are used for residence, without the written consent of the owners of a majority of the frontage on both sides of the street filed with the Building Commissioner.

The Chicago ordinance was passed in 1911. Its constitutionality was contested in the state courts by the Cusack Company and decided in favor of the city; and this decision was later sustained on appeal by the United States Supreme Court (*Chicago vs. Cusack Company*, 242 U. S. 526). In this case, the Court said: "A city, exercising the police power, may prohibit the erection of bill-boards in residence districts, in the interest of the safety, morality, health and decency of the community."

The Supreme Court of Missouri has gone further and said that bill-board advertising "might be entirely suppressed by statute,



and that, too, without offending against the state or federal constitutions."

In *Lake Shore vs. Ohio*, 173 U. S. 385, the U. S. Supreme Court said: "The power of the states to regulate matters of internal police within their limits applies not only to the health, morals and safety of the public, but also to whatever promotes public peace, comfort and convenience." In a New York case (*Wilshire*, 103 Fed. Rep. 620) Judge Ross said: "The views in and about a city, if beautiful and unobstructed, constitute one of its chief attractions, and in that way add to the comfort and welfare of its people. Bill-boards for advertising purposes, erected to any great height, would undoubtedly be subject to all these, as well as other objections, and such structures are, therefore, plainly within the regulating power of the governing body of the city."

In line with this opinion, the Supreme Court of Massachusetts (*Rideout V. Knox*, 148 Mass. 368) sustained as constitutional a state law declaring fences and other structures above 6 feet in height nuisances when maintained for the purpose of annoying the owners or occupants of adjoining property.

### **Enlarging the Limits of the Police Power**

Court decisions in this country show a disposition to enlarge the limits of the police power progressively wherever such extensions are clearly in the public interest and supported by public opinion. In this connection the Supreme Court has said (239 U. S. 394, p. 410): "It is to be remembered that we are dealing with one of the most essential powers of government, one that is the least limitable. It may indeed seem harsh in its exercise, usually is on some individual, but the imperative necessity of its existence precludes any limitation upon it when not exercised arbitrarily. A vested interest cannot be asserted against it because of conditions once obtaining. To so hold would preclude development and fix a city forever in its primitive conditions. There must be progress, and if in its march private interests are in the way, they must yield to the good of the community."

The same authority has said in a slightly different connection that laws and ordinances of this general nature do not constitute an "appropriation of private property, but merely a lessening of value due to a permissible restriction imposed upon its

use" (264 U. S. 303) and that the person suffering in this way must be held to be compensated by the general benefit to the community of which he is a member.

The ordinances that have been mentioned are a few examples, out of many that might be cited, of what has been done to restrict bill-board advertising under the general police power, without specific constitutional authority.

Massachusetts has recently taken a long step forward and removed all ground for question of the power of the law to restrict unsightly advertising for esthetic reasons, under the state constitution, by inserting therein a direct grant of that power.

### **Massachusetts' Constitutional Amendment for Bill-Board Regulation**

This constitutional amendment, which was ratified by a large popular majority in 1918, followed the recommendation of a special commission, of which the Attorney General was a member, and which reported such an amendment as necessary to legalize "the restriction of outdoor advertising *because of its unsightliness*." It reads: "Advertising on public ways, in public places, and on private property within public view may be regulated and restricted by law." The phrase "within public view" clearly indicates the purpose to authorize restriction on the ground of offense to sight. Indeed, it can have no other meaning. To assume otherwise would render the amendment meaningless and futile; for the power of the law to restrict public advertising on other than esthetic grounds—in the interest of health, safety, morals, etc.—was well established under the old constitution. The only question is whether the state constitution, in thus authorizing the application of the police power to certain esthetic matters affecting the public welfare, conflicts with the Constitution of the United States. Some of the decisions herein cited indicate that it does not.

The next step in Massachusetts was the creation of a commission, by the General Court of 1919, "for the purpose of investigating the question of the regulation of bill-boards and other advertising devices on public ways, in public places and on private property within public view." On the recommendation of this commission the General Court adopted in 1920 a mandatory act requiring the State Division of High-

ways to make rules "for the proper control and restriction of bill-boards" (Chap. 93, Gen. Laws, Sec. 29-33). Under this law each town or city also can draw up its own rules, subject to the approval of the Division of Highways. Some twenty municipalities have passed ordinances or by-laws for the restriction of bill-boards, but of these only two, those of Newton and Milton, have been approved by the Division. The Commissioners have stated that, before making further restrictive rules or approving other by-laws, they desire to have the constitutionality of one of these tested in the Supreme Court. This desire may be gratified by a test case brought before the Court in Malden, Mass., in October of this year, in which three large advertising firms appealed from fines of \$20 each for maintaining bill-boards within 300 feet of the Revere Beach Parkway in Everett.

#### Uniform Ordinance Proposed

The Massachusetts Federation of Planning Boards, in order to stimulate as nearly uniform action as possible by the various municipalities, has prepared a suggested form of by-law or ordinance for restriction of outdoor advertising, the text of which is here given:

#### SUGGESTED FORM FOR BY-LAW OR ORDINANCE FOR RESTRICTION OF OUTDOOR ADVERTISING

Advertising signs, sign-boards, or other structures for the purpose of outdoor advertising, hereafter permitted to be erected or maintained within public view in the (town or city of .....), subject to the provisions of Sections 29 to 33 inclusive of Chapter 93 of the General Laws of Massachusetts and except as herein provided . . . shall not exceed 4 feet in outside vertical width or 8 feet in length; no part of any such sign or structure shall be more than 5½ feet nor less than 1 foot above the average height of the surface of the ground immediately in front thereof, except that a sign on the wall of a building may be at any height provided no part of it projects beyond the boundary of said wall; no part of any such sign or structure shall be located nearer than 25 feet to a corner or junction of the boundaries of two public highways, or to another such sign or structure, or to the boundary of adjacent premises whose owner objects to such location; such sign-boards or structures that are not attached to the wall of a building shall be supported vertically on smooth uprights, without braces, and shall be kept neat and painted on all exposed wood and iron surfaces.

The requirements of the preceding paragraph shall not apply to a sign legally maintained in a public way under the provisions of Chapter 85 of the General Laws; or to a sign or sign-board not exceeding 2 square feet in area on any face; or to a sign or structure maintained or specially authorized by the municipality to advertise itself or a district thereof; or to any signs or structures that advertise only goods produced or sold, business carried on, or persons or institutions carrying on business, on the premises on which said signs or structures respectively are located.

It shall be the duty of the (here specify the local officials in charge of licenses, usually the selectmen in towns) to take such action as may be necessary under Sections 31 and 33 of Chapter 93 of the General Laws to secure the enforcement of the foregoing

provisions, also when notified by the state licensing officials of an application for a permit for the location of an advertising sign or structure in the municipality, to inform said officials within 20 days whether or not the location of the sign or structure described in the application appears to be contrary to any of the local regulations for outdoor advertising, and, if so, in what respects; also what other objections, if any, they may have to the granting of said permit. This information shall be on a form containing a copy of said regulations.

This form includes only such provisions as are of general application, and in regard to some of which, especially those relating to size and style of construction of boards, uniformity throughout the state is very desirable. A by-law or ordinance of this kind properly forms a part of the local building regulations.

The provisions suggested contain nothing as to setback of bill-boards from the street, nor as to their prohibition in certain districts, which can be provided for locally, either in the special by-law or ordinance or in connection with building lines and zoning laws. Where a zoning law exists which does not already cover the case, a section can be added excluding all bill-boards, with exceptions noted in the foregoing by-law, from residential districts.

No further provision is made in the by-law for penalties or methods of enforcement, as these are prescribed by the General Laws (Chapter 93, Sections 31 and 33).

#### Recent Hearings in Massachusetts

A tentative draft of rules regulating outdoor advertising was recently prepared in the office of the Division of Highways of Massachusetts, on which a public hearing was given by the Commissioners of Public Works in Boston on August 22. Although this date was in the midst of the vacation season, the lively popular interest in the subject brought to the city a large attendance of public-spirited men and women, broadly representative of the people of Massachusetts, who came to favor thoroughgoing restriction of bill-boards. Prominent among them were many delegations from chambers of commerce and town planning boards from various parts of the state, both interested in the development of their communities along attractive and beautiful lines, and therefore urging restriction of advertising that would injure and detract from such development.

The planning boards, which claimed to be the only official bodies chosen by the people of their municipalities especially to safeguard their interests in matters of this kind, appeared not only individually, but also unitedly through the officers of their Federation, which includes the boards of sixty cities and towns, embracing over three-quarters of the state population.

Official representatives also of the State Federation of Women's Clubs, which comprises

over 300,000 women interested in public affairs and which had taken action favoring restriction of bill-boards, and of the Massachusetts Civic League and various other non-political associations devoted to civic improvement, besides mayors, selectmen and other municipal officers, were among those who advocated such restriction.

In opposition were the organized bill-board interests of Massachusetts and of the United States, who have fought every effort to restrict their business in the past, and whose formidable array of attorneys showed recognition of the threatening import of the last forward step in legislation taken by Massachusetts.

#### WHAT THE FRIENDS OF REGULATION DESIRE

It was apparent that most of the representatives of the public had come to the hearing independently and without previous consultation, yet they were remarkably in agreement in asking that the rules should restrict the size of bill-boards to more modest dimensions than the average at present in general use, and that boards should be excluded entirely from certain districts where they would be especially obnoxious to public view or damaging to adjacent property. In the matter of size, they were practically unanimous in demanding a limit not exceeding 8 feet long by 4 feet high. This was advocated as a compromise between the smaller size they would desire and the larger dimensions in common use, the general objection to which had brought about the enactment of the law requiring restriction.

At an adjourned hearing, two weeks later, the opposition attorneys presented their arguments, which are of great interest as presumably the best that can be offered after long study by eminent legal talent in a nation-wide fight against legal regulation of bill-boards.

The fact was brought out that the average size of bill-boards erected by the principal companies has been increasing gradually for years. The posters in common use are composed of printed sheets, each measuring about 28 by 41 inches. One, two, three, six, eight, sixteen or twenty-four such sheets are taken to make up complete posters of different sizes, requiring bill-boards of corresponding dimensions. It was stated that the larger poster companies have now agreed upon a standard board 25 feet long and 12 feet high, considerably higher than many recently used in Massachusetts to accommodate a 24-sheet poster, which, as now standardized, measures just inside 20 by 9 feet.

The area of painted boards has grown also, under the spur of competition in advertising, fostered by the big companies, from much smaller dimensions to a standard, now advocated by the leading concerns, of 50 by 14 feet. Their attorneys, however, asked that the legal limit be set at not less than 100 feet long, to provide for future expansion; and they all agreed that they would prefer to have no rule fixing a definite limit, but to leave the questions of size and location to be determined in each case according to the judgment of the Commissioners or their agents.

#### PRINCIPAL ARGUMENTS OF THE OPPOSITION

The attorneys for the advertising interests opened their argument with the plea that the men and women who had come to the hearing to advocate restriction of bill-boards represented comparatively few persons and that the public was not interested.

The agitation that had resulted in the enactment of the present law requiring rules to control bill-boards was compared to that which brought about the passage of a recent act establishing a board of censors for moving pictures in Massachusetts, which was rejected by a large majority on referendum to the voters.

This argument ignored the fact, brought out earlier in the hearing, that the movement for bill-board restriction started with a popular referendum, in which the people of Massachusetts in 1918 ratified the constitutional amendment, authorizing it by the largest majority given any of the numerous amendments then adopted. It also ignored the fact that movie censorship was defeated largely because the people were unwilling to trust so much to the arbitrary judgment of the censors; which is the very principle the advertising companies now advocate in asking that bill-board regulation be left to the Commissioners to decide each case on their judgment, instead of by established rules, as the law requires.

The spokesmen for the poster companies claimed that bills of at least 24 sheets and boards not less than 25 by 12 feet in size are necessary to successful outdoor advertising, and that a limit anything like 8 by 4 feet would be practically prohibitive. On the other hand, it was pointed out, by those pleading the cause of the public, that one need look no further than the subway and elevated train platforms to see plenty of one-, two- and three-sheet posters in common use, the largest of these measuring less than 3½ by 7 feet.

To show the necessity and value to the country of bill-board advertising, a letter from President Wilson was read, praising the efficiency of the posters used in the war drives, for Red Cross, Liberty Bonds, etc. The able attorney who read it failed, however, to remark that these war-time campaigns, which were cited as the greatest and most effective ever carried on by outdoor advertising, did not gain public approval by the use of 24-sheet posters or boards 25 by 12 feet in size; but, on the contrary, achieved their success chiefly with single-sheet posters. The effective appeal of such pictures as "The Greatest Mother in the World" and "Sure, We'll Finish the Job" appear to be a complete answer to the claim that large bill-boards are necessary to successful advertising.

The other principal argument of the opposition, which was emphasized especially by the attorney for the Bill-Posters' Union, was that the Commission has no right to make rules restricting the size or location of bill-boards on private land, that the law requiring them to do so is unconstitutional, and that they should get the opinion of the Attorney General on this point before carrying it out.

This argument ignored the facts, stated earlier in the hearing, that the law was enacted on the recommendation of a special Commission, including the Attorney General, which expressly advised that the rules made under it should restrict bill-boards in size, location and many other respects; also that it is not the business of the Commissioners of Public Works to question the validity of the law they are appointed to execute, but to execute it.

It was argued by the advocates of restriction that the proposed rules submitted for discussion would accomplish little but to sanction present unsatisfactory conditions; that they were crudely drawn and ambiguous in many points; and the most hopeful development of the hearing was that the draft submitted was not the work of the Commission itself. Its members have heretofore given little attention to the restriction of bill-boards, which is a

minor matter among their numerous duties. The rules submitted to the hearing were drawn up tentatively, as one of the Commissioners stated, by some of the younger men in the department. In their work the influence of the poster interests was apparent in fixing the proposed limit of size exactly at their present desired standard, of 25 by 12 feet.

We may hope, therefore, that in their final revision of the rules the Commissioners will not thus perpetuate the very feature that the law was designed to remedy; but that they will carry out the plain intent of the law, giving paramount consideration to the public interest, and leave the final decision as to its constitutionality in the hands of the courts.

The public, which is meantime becoming more and more aroused against the bill-board nuisance in Massachusetts and elsewhere, awaits with interest the action of the Commission.

## The Smoke Nuisance—A Civic Rather Than an Engineering Problem

EXPERIENCE has shown that the problem of smoke abatement is not so much an engineering as a psychological one. Until the public demands smoke abatement, and shows a continued interest in it, no permanent improvement is possible. Civic organizations and other interested bodies can therefore take an important part in the movement to eliminate the smoke nuisance by helping to stimulate public interest in the subject. The smoke abatement problem is not one that can be settled over night and then left to take care of itself without further attention, but is something that must be watched year in and year out if high standards are to be maintained.

These facts are reported by the Department of the Interior, following a recent study of the problem made by the Bureau of Mines, which showed that civic authorities and organizations are on the whole increasing their activities in smoke prevention work, and that between fifty and sixty cities in the country have already adopted smoke ordinances.

Any operation requiring fuel can be conducted without objectionable smoke and yet use bituminous coal in some form, states Osborn Monnett, consulting engineer of the Bureau of Mines, who conducted the investigation. In domestic furnaces it should be possible to reduce smoke from 50 to 75 per cent without addi-

tional equipment or any change except in the methods of handling the fuel. Smoke from residences has a serious pathological aspect in addition to its destructive effect on surrounding property. Lung diseases are affected by the corrosive fumes to a marked degree, and investigators agree that there is a direct relation between a smoke-laden atmosphere and the morbidity of the population and that such an atmosphere tends to lower efficiency and increase crime. There is also a considerable loss to citizens in smoke-ridden communities through damage to fabrics and various kinds of merchandise.

At industrial plants, smoke prevention is merely a matter of management, engineering judgment and designing skill. Proper handling of fuel will also eliminate the economic loss caused by the decreased efficiency in the transmission of heat from the fire to the boiler or heater, due to the deposit of soot on the heating surface of boilers and furnaces.

The results of the investigation by the Bureau of Mines have been embodied in a report designed to make the technical problems necessarily associated with smoke abatement thoroughly intelligible to the non-technical reader. Copies of this report, Technical Paper No. 273, may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

## Awards for Adequate Community Health Service

THE American Public Health Association has announced that Dr. Watson S. Rankin, Health Commissioner of North Carolina, has been appointed Field Secretary for the work of the Committee on Municipal Health Department Practice. The Association is offering a series of awards to cities for the most adequate community health service. Dr. Rankin's time will be spent in the field visiting cities for the purpose of determining the status of their health work and of assisting them in

its organization and development. His services and the information he collects, with other important data, will be available to members of the American Public Health Association and all others who want guidance in developing their local health work. The work has been made possible by a grant from the Metropolitan Life Insurance Company. An office for information will be established in Baltimore by the United States Public Health Service.

# Chamber of Commerce Activities in Public Affairs

## **Governor Requests State Chamber Leadership in \$150,000,000 Water-Supply Project**

NEWARK, N. J.—A comprehensive study of New Jersey's water-supply problem by the New Jersey State Chamber of Commerce was advocated by Governor George S. Silzer at the annual dinner of the State Chamber on November 8. The Governor's own proposal, which he outlined as a basis for research and discussion, involves the acquisition, control and development by the state itself of all sources of water-supply, aside from strictly local supplies adequate only for a single municipality.

The present chaotic condition was emphasized by the Governor:

"The state is confronted with a most confused condition—the shortage of water, the struggle between municipalities for supplies, the ownership of supplies divided between municipal and private control, destruction of supplies by pollution or their acquisition by private interests, and a retrogression due to the inactivity of municipalities."

For the seven counties of northeastern New Jersey comprising the Metropolitan Area, Governor Silzer estimated daily needs in 1960 of 640,000,000 gallons. With a supply now available of about 300,000,000 gallons, it would be necessary to add within the next thirty years a daily supply of at least 340,000,000 gallons, or something over 100,000,000 gallons to the daily supply every ten years.

Governor Silzer estimated that \$70,000,000 would be required to purchase existing public and privately owned water-works and that \$80,000,000 would cover the development of new supplies as needed from time to time. Such purchases would be financed by the issuance of bonds. The Governor outlined a plan whereby the project could be made self-supporting and the burdens of the municipalities lightened.

In conclusion, the Governor said:

"My purpose is not so much to project or father any particular plan as it is to induce the people of New Jersey to take up this im-

portant question, study it, consider it carefully in the public interest, and work out and adopt a plan which will take care of the present and future needs of the state."

Stressing the fact that the question was non-partisan and should not be allowed to become the subject of political manipulation, he made a strong appeal that the State Chamber make a study of the subject and formulate a plan whereby the dangers of the present situation might be averted.

WILSON J. VANCE, Secretary.

New Jersey State Chamber of Commerce.

## **Municipal Golf Links for Evansville**

EVANSVILLE, IND.—Evansville may now be added to the small list of cities in the United States owning municipal golf links. As the result of suggestions by the late Mayor Bosse, a tract of over 400 acres adjoining Oak Summit Park and Mesker Park has been purchased by the city as the site for an 18-hole golf course, and more than \$60,000 has already been spent in developing the course. The development is being planned by the American Park Builders, under the direct supervision of the well-known designer of golf courses, Thomas Bendelow, of Chicago.

Golf experts who have viewed this project say that the links will be among the finest in the country. In addition to laying out a course, it is planned to erect shelter houses and drinking fountains on the field. The location of the links is believed to be a very favorable one. A concrete road and an asphalt street run directly from the heart of the city to the field, and street cars pass along the side of the park. A tourist camp is also situated on the grounds, which is an added attraction to visitors from out of town.

The Chamber of Commerce is proud of the part it has had in helping the city to mold public sentiment. When the bond issue was proposed for this important civic project, it was protested before the tax board. The Chamber of Commerce appeared before the tax board and helped

to offset the criticism, with the result that the bond issue was allowed.

The completion of the work will provide recreation for very many of our citizens who have been unable to make use of the links owned by private clubs. One of our industrial leaders, Silas Ichenhauser, of the Ichenhauser Company, has already announced that he will provide a golf outfit for every one of his employees and will urge them to take advantage of it. We believe this example will be followed by many others.

J. S. JOHNSON,

Secretary-Manager, Evansville Chamber of Commerce.

### ***A Municipal Terminal Market***

NEW YORK, N. Y.—A municipal terminal market is now being erected in the borough of The Bronx at a cost of approximately \$7,500,000. This is the first of a chain of such markets to be constructed by the city of New York, one in each of the five boroughs of Greater New York. The Bronx Board of Trade for many years has been in favor of a terminal market policy for this city, and has done everything possible to further the progress of the Bronx market project. This cooperation has been greatly appreciated by the city, and representatives of the Board of Trade were called into consultation with the city authorities when plans for the market were being prepared.

The sketch reproduced herewith depicts the Bronx market as it will appear when completed. The plan in the lower right-hand corner of the sketch shows the boundaries of the market area. The build-

ings will be of steel and concrete construction and equipped with the best modern facilities for the handling and storing of foodstuffs. It is believed that the market when completed will be the most advanced institution of its kind in the world and will serve as a model for the other terminal markets to be erected by the city.

The foundation work on the Bronx market is now nearing completion, and it is expected that the contracts for the construction of the market buildings and equipment will be let by the city in the near future. The market will no doubt be finished and in full operation by the spring of 1925.

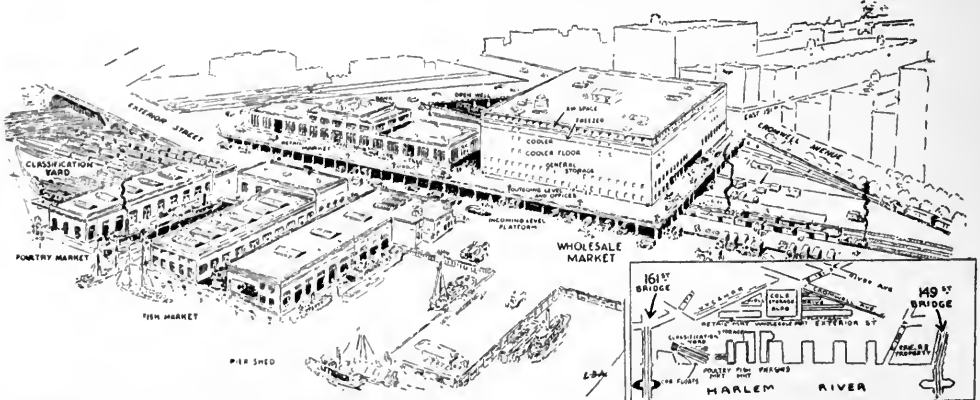
CHARLES E. REID,

Executive Secretary, The Bronx Board of Trade.

### ***A County Chamber of Commerce Organizes an Annual Indian Ceremonial***

GALLUP, N. MEX.—The second annual Inter-Tribal Indian Ceremonial held in Gallup during the second week in September was an overwhelming success. Twelve tribes of Indians participated, with an Indian attendance of over 3,000, and a total attendance for the three days of approximately 15,000 people. Among the out-of-town visitors were many well-known people from all parts of the country, including prominent leaders in various business circles. As a principal part of the program, Indians in native costume gave exhibitions of the dances peculiar to the many tribes represented and of their native games and sports.

The association conducting the Ceremonial was organized and developed within the Gallup Chamber of Commerce, and



*Drawing from the Bronx Home News*

**PLAN OF THE BRONX TERMINAL MARKET**

through the splendid efforts of those in charge of the work the Ceremonial has secured its place as a permanent annual event of national interest and educational value. Anticipating the success of the project, the association constructed this year a permanent grand stand, an exhibit building and other necessary equipment.

JERRY S. FARMER.

Secretary, McKinley County Chamber of Commerce.

### **Helping Public School Pupils to Study Their City and Its Industries**

CANTON, OHIO.—The public school pupils of Canton have been devoting the month of November to a study of the city of Canton and its industries, under a plan brought forward by our Superintendent of Schools, Wilson Hawkins. This study has been engaged in by all pupils above the fifth grade in the public schools, each pupil being required to write an essay upon some phase of the city's history or upon some commercial or industrial activity. To guide the children in their course of study, Superintendent Hawkins compiled the following list of suggested topics:

Pioneer History of Canton and Stark County  
Canton in War—Her Patriotism  
Distinguished Citizens, Past and Present.  
The Geography of Canton  
Canton's Industries  
Canton's Business Men  
Education in Canton: (a) Public Schools; (b) Private Schools; (c) Near-by Colleges  
The Chamber of Commerce  
Our Churches and Religious Organizations  
Canton, a County-Seat  
The Ideals of Her Citizens  
Canton's Fraternal Societies  
Railroads and Commercial Advantages  
Civic Organizations, Women's Clubs, etc.  
Lecture Courses and Theaters  
Our Beautiful Streets  
The Homes of Our People  
Canton's Population and Growth  
The Health of Our City  
The Proposed Municipal College  
Our New Schools  
Our Hospitals  
Our Y. M. C. A. and Y. W. C. A. and Kindred Organizations  
Canton's Laboring Man  
Our City and County

Officials  
Playgrounds, Parks and Recreation Centers  
Fraternal Homes  
The Juvenile Court  
The Children's Home  
Our Large and Successful High Schools  
Law and Order in Canton  
The Proposed New Federal Building  
Our Hotels  
Our Stores and Merchants  
Our Public Library and School Libraries  
Our Liberal Contributions to New Movements and Charity  
Our Street Railways  
Our Municipal Water Plant  
Electric Lighting and Telephone Systems  
The Night Schools  
Canton's Farming Interests  
Our County Fair  
Our City Markets  
Canton's Professional Men  
Our Streets  
Historic Points of Interest—McKinley's Monument  
Our Country Clubs  
Our Banks and Building Associations  
Our Newspapers and Their Influence  
Canton's Future Prospects

library, the Chamber of Commerce and other organizations, seeking information. Much of the material that they needed, however, was not readily available for their use, and so it was decided by the Board of Directors of the Chamber of Commerce to assist the children by issuing a special information bulletin. In compiling this bulletin an attempt was made to supply such data as could not be secured by the children from general sources, on subjects of an historical, business and industrial nature relative to the city of Canton. Copies were distributed to the pupils of the parochial as well as the public schools.

HARRY W. LUETHI,

Manager, Canton Chamber of Commerce.

### **West Meadows Park, New Haven**

NEW HAVEN, CONN.—A tract of land known as the West River Meadows, recently acquired by New Haven for park purposes, will permit of the extension of Edgewood Park to Congress Avenue, making a park somewhat similar to the Fenway of Boston. There will be room for ball fields, and West River, when the channel is deepened, will be ideal for boating.

This project has been developing for several years, but recently, owing to building operations near what will eventually be the main entrance, it became necessary for the city to take active steps in acquiring the tract, especially the part adjoining Edgewood Park.

The Chamber of Commerce advocated the purchase of the section which was in immediate danger of being built up, and urged the acquisition of the entire meadows. This met with the approval of the Mayor, who urged the necessary bond issue. The Board of Aldermen passed the necessary legislation, and with the recent assessment of benefits and damages satisfactorily settled, the project is now an assured reality.

J. F. FERGUSON,

Secretary, New Haven Chamber of Commerce.

### **BULLETINS ON ACCIDENT PREVENTION AND FIRE PREVENTION**

The Chamber of Commerce of the United States, through its Insurance Department, is issuing a valuable series of bulletins designed to assist chambers of commerce and civic organizations in conducting community safety campaigns. Copies of these bulletins on Accident Prevention and Fire Prevention may be obtained on request to the National Chamber's headquarters at Washington, D. C.

Immediately upon the publication of this list, the pupils began to besiege the public





THE DOLL PARADE BY PLAYGROUND CHILDREN OF CLARKSBURG, W. VA.

## Cultivate the Coming Crop

Being the Story of How One Town Is Teaching Its Youngsters the Principles of Good Government Through Practise

By **Harrison G. Otis**

City Manager, Clarksburg, W. Va.

“A FEW good fires and funerals” is a time-honored prescription for civic sluggishness. But while we are waiting for the Grim Reaper to do his duty, it will pay us to cultivate the coming crop a bit.

We can handle the material growth of most communities by zoning ordinances and building codes. Guiding the next generation of voters is another matter. Somehow, good citizenship doesn't blossom best when hedged in by rows of *don'ts*. You can't stir up much enthusiasm in a real boy by reading him documents beginning: “It shall be unlawful for any person, firm, or corporation.” Here are some of the constructive methods we have tried in Clarksburg:

### Playground Self-Government

This past summer we made each of our neighborhood playgrounds a sort of self-governing junior town. The enrollment on the several grounds varied from 300 to

800. Every youngster was a voter. Primary elections were held. Opposing tickets automatically appeared, and in most cases, chivalry notwithstanding, there were contests between boy and girl candidates.

At the final elections each playground chose a council of nine members and selected two representatives to the playground legislature. The playground leaders, employed by the city, served as city managers, thus varying a bit from the “grown-up” plan, for obvious reasons. Then followed the appointment of the usual officials—clerk, treasurer, police chief, judge, health officer, city engineer, recreation director, and so on, with such variations as local councils determined.

It worked. Rivalry was keen, but good sportsmanship prevailed. One councilmanic candidate campaigned against himself in order to qualify for police chief. One newly appointed engineer produced plans for improving his playground, and with his

assistants did an excellent piece of work. Health officers appointed sanitary inspectors who soon made soap and water popular. Nurses with first-aid kits healed bruises and scratches. Problems of discipline handled themselves; for, as in real life, a "roughneck" may often be turned into a good policeman.

Unsuspected originality developed, and budding leadership was given its chance. One playground produced an orchestra. Another staged a city-wide doll's festival with an exhibit of hand-craft as an added feature. Inter-playground relations were handled by the "legislature." The recreation director served as governor, the leaders as senate, and the house of delegates was elective. A "better grounds" contest, with a large piece of apparatus as the prize, was very effective. Tournaments and leagues featuring volleyball, speed-ball, horseshoe and other games, winding up with a playground field day, tied the several units together and developed competition with its vital lessons of loyalty, fair play, and how to take a trimming with a smile.



HORSESHOE CHAMPIONS, 1923

### City Flag and Seal Contest

The *Clarksburg Town Crier*, mailed from the city building to each home, tries to keep the young folks in mind. Through its columns was conducted a contest for a city



OFFICIAL FLAG AND SEAL OF CLARKSBURG

flag and a new city seal. School children participated, and a large majority of the designs submitted came from our "coming crop." A committee appointed by the Chamber of Commerce judged the contest, and its recommendations were adopted by the City Council. Both the seal and the flag were used extensively during the big home-coming festival held last summer, a prominent feature of which was the historical pageant in which hundreds of children participated. Several thousands of the seals, in medallion form, were sold as official souvenirs.

The design of the seal symbolizes the history, resources, activities and possibilities of the city. The flag, as described in the official resolution, also has a meaning:

"A bright red, five-pointed star, symbolizing the city of Clarksburg, composed of five former towns, served by two intersecting state highways, represented by white bars extending diagonally, corner to corner, across a bright blue field,—the bars radiating to the four corners of the flag being likewise symbolic of Clarksburg products distributed to the four corners of the earth,—a further symbolism denoting the star of hope with the sky as the limit,—the colors, red, white and blue, being suggestive of the national flag, as allegiance to the city of Clarksburg implies a greater allegiance to the nation."

### School Children As Fire Inspectors

The home fire hazard inspection made by school children with the aid of questionnaires proved very successful and is no doubt reflected in the low fire loss, which dropped to 46 cents per capita as compared to 78 cents the preceding year, and to the national rate of \$4.41.



MODERN MOTORIZED EQUIPMENT REACHES FIRES OVER ALMOST IMPASSABLE STREETS; BUT ADEQUATE SNOW REMOVAL EQUIPMENT OR FIRE-PROOF CONSTRUCTION IS ESSENTIAL FOR SAFETY UNDER CONDITIONS LIKE THIS

## What Good Is a Fire Department Here?

By W. E. Hart

Manager, Structural Bureau, Portland Cement Association

**W**HAT good is a fire department here? This was the caption written in February, 1923, on the photograph from which our illustration was made. It shows Main Street, Tilton, N. H., covered with snow to a depth of several feet, making the street practically impassable for heavy vehicles. The caption evidently was prophetic; for the newspapers reported, towards the end of March, a disastrous fire in the very town where this photograph was taken, complete destruction of the buildings having been due to the fact that the fire engines were stalled in the snow on the way to the fire. The buildings destroyed included Ladd Brothers' horse stables, together with fourteen horses, two cows, two valuable dogs and a large quantity of machinery, tools and produce. The following is from a newspaper clipping:

"In the meantime the firemen were arriving, but the motor fire truck was stuck in the highway several hundred yards below the fire, at the foot of the hill. The snow in the highway at this point is from 5 to 7 feet deep, and it was

impossible to do anything except carry hose and chemicals on foot."

A similar story comes from Penacook, N. H. From the account published in the *Manchester* [N. H.] *Union* of January 31, 1923, the following is quoted:

"Assistance was immediately sought of the Concord Fire Department, Chief Green ordering the run to Penacook, a distance of six miles. Two miles south of the burning buildings the entire fleet of motor apparatus became stalled in snow-drifts which have made traffic most difficult during the past week. A pumper was finally forced through the drifts, but arrived too late to be of assistance."

Such conditions merit most serious thought. Snow-drifts of the kind shown make the city fire department almost useless for the time being and offer one of the best possible arguments in favor of fire-proof construction for buildings.

Perhaps we have been too much inclined to over-emphasize the security furnished by a good fire department. No one denies that a good fire department does furnish reasonable security to a city for the greater

part of the year. But what about the rest of the time? Aside from heavy snowfalls, there are days, for instance, when high gales are blowing, there are other times when blinding storms are taking place, still others when bitter cold weather greatly reduces the effectiveness of the fire fighters, and there may be long periods of extremely dry weather, when the danger of a conflagration is far greater than at ordinary times.

The only buildings safe at all times

against destruction by fire are buildings that will not burn. The only cities safeguarded against the sweep of conflagrations are cities built of buildings that will not burn. For examples of such cities we must look to the countries of Europe. That is why our per capita fire losses range from five to twenty times the losses in European countries.

No, we have no such cities in this country, but we will have them eventually. We are headed in that direction.

## And What Good Is a Fire Department Here?



**WHAT CHANCES HAVE THE FIREMEN TO GIVE PROMPT SERVICE UNDER SUCH CONDITIONS?**

To minimize the slowing down of fire or police apparatus by street traffic, has your city an ordinance which requires other vehicles to make way for such apparatus by driving as close as possible to the curb and stopping, and prohibiting them also from following closely after fire or police apparatus or parking within, say, 600 feet of a fire? The subject of the right of way of fire apparatus through congested streets evoked lively discussion at the recent annual convention of the International Association of Fire Engineers. Among the cities whose Chiefs reported ordinances to reduce traffic interference with fire departments were Buffalo, Indianapolis, New Orleans, Texarkana, Hoboken, Greenville, Miss., and Kingston, Ont. Several of the Chiefs emphasized the need for effective cooperation by the police departments and for educational campaigns through the newspapers and civic organizations to make such ordinances effective.

# Mechanical Devices for Highway Traffic Regulation

AT the recent annual convention of the National Highway Traffic Association, a progress report of the National Committee on Mechanical Devices for Highway Traffic Regulation was submitted by the committee's chairman, Professor Lewis W. McIntyre of the University of Pittsburgh. At the suggestion of the Association's President, Professor Arthur H. Blanchard, of the University of Michigan, THE AMERICAN CITY is glad to publish the following sections of the report, which discuss mechanical devices from the standpoint of relief of congestion. The comments in the numbered (small type) paragraphs are from representatives of four manufacturers\* to whom the report has been submitted by THE AMERICAN CITY. Further comments or criticisms of the committee's suggestions, for consideration in advance of action at the 1924 convention of the Association, may be sent to Professor McIntyre at Pittsburgh, Pa.

## From the Standpoint of Safety

*From the standpoint of safety the following principles should be considered in the design of mechanical devices for highway traffic regulation:*

**VISIBILITY:** In detail this means that the upright portion of all stanchions, semaphores, etc., should be painted with alternate bands of

black and white from 8 to 12 inches wide. It means that the base of such stanchions should be painted white. It means that the spot on the pavement on which they are set should be painted white. It means that spot lights arranged to illuminate the base at night and (in the case of semaphores) the traffic officer, are advantageous. It means that unlighted obstructions of every character should be denied a place upon the highway at night, be they stanchion, semaphore or mushroom.

**TRAFFIC SIGNS:** Traffic signs should conform to this principle of maximum visibility. They should denote their meaning as far as possible by their shape and color. Probably the best combination consists of vivid yellow letters on a black background. Signs intended for moving vehicles should differ from those intended for stationary vehicles. The latter might have the colors reversed, i. e., black letters on a yellow background. Signs of a tertiary character, such as those for the control of pedestrians, street car stops, etc., might consist of black letters on a white background. The writer recognizes that yellow does not represent the color of maximum visibility, that red is the most penetrating color. He would not use red on traffic signs, however, for reasons stated in the discussion of color. (1) (2)

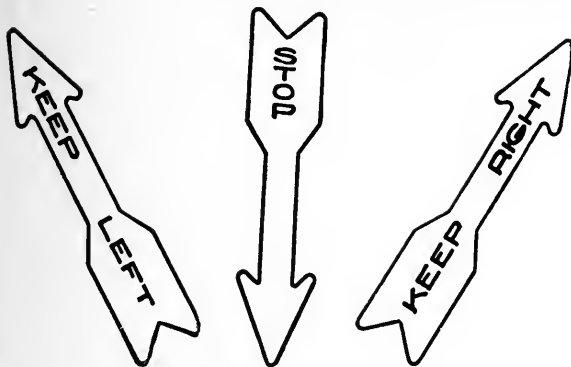
(1) We do not agree with the committee in their statement that a traffic sign should be a vivid letter on a dark background. The conspicuousness of such a sign at night is not nearly as great as that of a sign having a light background with a dark letter; for, the background being much larger in area than the letters, more light is reflected to the eye, which is the important thing at night. We do not agree that red is more penetrating than yellow, since all light at night from such signs is reflected light, and the reflective power of red is far beneath the reflective power of yellow.—L. W. McOMBER.

(2) The report recommends that traffic signs should denote their meaning as far as possible by their "shape and color." From experience, I am convinced that the recommendation should have been "shape and dimensions." More clearly to bring out this point, I am enclosing blue-prints showing dimensions and layout of a few Mississippi Valley warning signs. These are all 24 inches by 24 inches in size. The square sign indicates "Caution," and is to be used to designate a condition *not* of the road which may constitute a hazard. The diamond-shaped sign indicates "Slow," and is to be used to designate a condition of the road, constituting a hazard *unless speed is slackened*. The

\* These are (in alphabetical order):  
 Frederick S. Lawrie, Manager, Safety Traffic Light Manufacturing Company, Milwaukee, Wis.  
 L. W. McOmber, Traffic Engineer, Esco Manufacturing Company, Peoria, Ill.  
 L. C. Porter, Commercial Engineering Department, Edison Lamp Works, General Electric Company, Harrison, N. J.  
 T. R. Willwerscheid, President and Treasurer, Western Display & Manufacturing Company, St. Paul, Minn.



TYPES OF SIGNS MENTIONED IN FOOTNOTE (2)



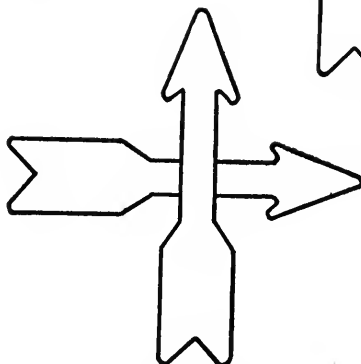
### Restricted Area Signs

An arrow and diamond-shaped plate combined



### Traffic Regulation and Direction Signs

A plain arrow with necessary information thereon



Sharp curve

### Quiet or Caution Signs

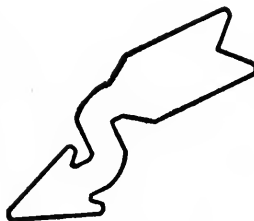
An arrow and disc plate combined

### Railroad crossing

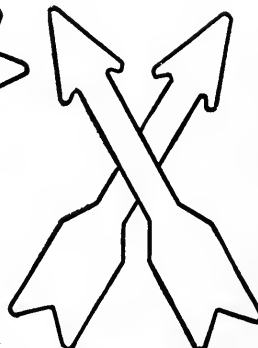


### Parking Signs

An arrow and square plate combined



Dangerous hill



Dangerous crossing

### Danger Signs

An arrow placed in various positions to conform with standard signs of the American Automobile Association

## TYPES OF ARROW SIGNS RECOMMENDED BY THE INTERNATIONAL POLICE CONFERENCE

To conform to recommendations, a sign need not be cut in form indicated, but may be painted on a board

**COLOR:** The use of red as a color for traffic regulation signs, traffic control lights, or for anything except to indicate danger of the first degree, is to be deprecated. The promiscuous use of the word "Danger" on such signs is also to be frowned upon. Familiarity breeds contempt, and the motor vehicle user, having seen the red color used to indicate things which were not particularly dangerous, or having seen the word "Danger" quite frequently where "Caution" or "Warning" would have been more appropriate as indicating danger of a secondary or tertiary character, gives much less heed to this color or this word when it does indicate a real danger. The use of the word "Danger" in connection with advertising should be prohibited. For a driver to read that it is dangerous to go any further without a drink of So-and-So's coffee makes him much less alert when confronted with a real danger sign. Let us not forget the story of the "wolf." (3) (4)

**RELATION OF COLOR AND SIZE:** The relation between color and size of traffic signs merits serious study. Psychologists tell us that concerning the bill-board as used for outdoor advertising, there is a definite relationship between the size of the bulletin and the colors and tints used to secure maximum effect. Halving the size of that bill-board will change the character of the colors and tints which should be used. What is the proper size for various types of traffic regulation signs? The determination should not present insurmountable difficulty.

**UNIFORMITY:** If we were to collect specimens of traffic control devices from those cities where traffic regulation is active, we could fill a museum with signs and signals, no two of which would be alike in color, shape, size, or marking. Such a collection would be the best kind of evidence of the need for uniformity. The result of the driver's being faced with so many different types of direction is that he disregards all of them to a greater or less

railroad grade crossing and the arterial highway "Stop" signs are distinctive in shape, to cover individual conditions. Guide signs, information signs, and restriction signs should be rectangular in shape, the longest dimensions being either horizontal or vertical, as the circumstances may require. The shape of a sign is fixed during the life of the installation, whereas color will deteriorate and change.

The report, in my judgment, makes a grave error when it suggests a black background and a yellow letter for signs intended for moving vehicles. This sign should be finished in a background of some light color, preferably white, with the copy in some dark color, preferably black. A white background with copy in black can be seen for the longest distance both day and night, and can be most quickly and plainly read. Warning signs are most necessary for night driving. White reflects light, and black absorbs light.

The report states that "red is the most penetrating color," and here again I feel it is at fault. A bright red on a field of white, or a bright red with a substantial border of white, will instantly attract the eye, but only from a limited distance, while the combination of white and black will "reach" further.—T. R. WILLWERSCHIED.

(3) We agree with the committee's report that red as a color should not be used except to indicate danger of the first degree; also that the word "Danger" or its equivalent should not be used in advertising signs.—L. W. McOMBER.

(4) Red under artificial light appears as black to many people, and the efficiency of warning signs depending on this color is proportionately reduced.—T. R. WILLWERSCHIED.

degree. In other cities, traffic direction devices are few and far between. The citizen of Chicago should be able to obey without question the traffic rules of San Francisco as indicated by the mechanical devices employed. A red light on the traffic tower on Woodward Avenue, Detroit, should not indicate "Stop" while the same color indicates "Change" on Fifth Avenue, New York, nor a green light indicate "Go" in Detroit while it indicates "Stop" in New York.

**STANDARD TRAFFIC LIGHTS:** As a suggestion looking toward standardization of traffic lights on towers, the writer would eliminate red for the reasons already named, viz., the reservation of this color for the indication of danger. We might then follow the standard colors in use by our steam and electric railway systems and also as partially adopted by the American Association of State Highway Officials, i. e., yellow, green, and white as indicating varying degrees of caution and a clear track respectively. Green might indicate "Stop," yellow "Change," and white "Go." (5) (6)

**POSITION LIGHT:** A better arrangement would be the use of position lights instead of colors. The Pennsylvania Railroad, among others, has adopted the position light in place of the old semaphore and colored light. Such a system consists of a circular disc on which seven lights are placed in such a manner as to give three in a row, horizontally, vertically or diagonally. Three lamps are lighted simultaneously giving three different possible combinations corresponding to the positions formerly taken by the semaphore arm, i. e., horizontal, vertical or inclined. (7) (8)

**COLOR-BLINDNESS:** This would eliminate the effect of color-blindness in causing misunderstanding of traffic lights of this sort, and would be more intelligible even to the total stranger because of its greater simplicity. The effect

(5) We do not agree with the committee that red should be dropped as a traffic-control signal. We believe that the standard colors of our steam and electric railway system should be used, but that red should be retained as "Stop," since a driver who passes an intersection where a "Stop" sign shows is certainly encountering a condition of first-degree danger in driving into traffic which is passing at right angles to his path. We do not say that red should be used in traffic markers, but that red should be used in traffic-control or traffic-regulating units, or, as commonly called, "Stop and Go" units.—L. W. McOMBER.

(6) The colored lights in use by the Railroad Signal Association were adopted as standard lights for use in the control of traffic, viz.:

- a. Red for "Stop"
- b. Yellow for "Proceed with Caution"
- c. Green for "Proceed"

It was recommended that the white light for use in the control of traffic be discontinued, as sometimes it is used to indicate "Clear." This was not deemed the best practice, for the reason that in case a colored glass is broken, the danger light might show white instead of red, or the caution light might show white instead of yellow, and might be confused with some other light.—INTERNATIONAL POLICE CONFERENCE, 1923. (From "Recommendations for Standardization of Signs and Signals in Traffic Regulation.")

(7) I doubt if position lights for street traffic signals would be very practicable. The position light, necessarily, has to have quite a large background, which would make it rather cumbersome as a street traffic signal, and also it does not lend itself readily to four-way indications such as are generally required in street traffic work, whereas on railroads the indi-



of color-blindness is not such a negligible item as it might at casual glance seem to be. Four per cent of the male population of the United States are color-blind to red and green. As further evidence of this lack of uniformity, the writer counted in Pittsburgh four different color combinations on traffic signs in one block, viz., white and black, red and white, blue and white, and yellow and black. (9)

**A JOINT COMMITTEE:** This much-desired uniformity will not be advanced by having the committees on traffic regulation in various technical societies make individual recommendations with regard to these matters. A joint committee should be appointed with representatives from all organizations interested in the regulation of traffic. The report of such a committee would have much greater weight and be much more likely of universal adoption than the work of a committee from one organization. So numerous and of such infinite variety are the devices for the regulation of traffic rapidly becoming, and so confusing is the result, that this may soon become the subject of national legislation unless a measure of co-operation is secured between various states and their lesser subdivisions. The delegation by many of our cities of the regulation of traffic to aldermen, commissioners and police officers of very limited experience in traffic work has contributed to this confusion. These men, not being content to profit by the experience of others, and frequently without inquiring into this experience, appear to have devoted most of their energies to devising some new form of installation. In this connection the forthcoming report of the American Engineering Standards Committee on Traffic Regulation will undoubtedly be of considerable interest.

**CHAINS:** The joining together of stanchions and posts with chains and ropes is dangerous and cannot serve any purpose which the stanchions themselves would not serve. The chains are relatively invisible and are more likely to cause accidents than prevent them. A case in point is some of the safety zones recently adopted in Detroit consisting of large posts painted white and joined together with chains.

**STABILITY:** All devices for the regulation of traffic should be of such construction that

cations need to be seen from one direction only. I am also inclined to believe that the general public would recognize a red color for "Stop" much more readily than they would recognize the position of a row of lights. To one unfamiliar with railroad practise the position of a row of lights might not mean anything, whereas red to almost everyone means danger.—L. C. PORTER.

(8) As to the use of position lights, such a system would be something entirely new, and would mean that the entire country would have to learn a set of signals different from those now used, which are at last becoming standardized the country over. We do not feel that such a recommendation should be made at this time when colors are at last being standardized.—L. W. McOMBER.

(9) The report states that 4 per cent of the male population of the United States are color-blind as to red and green. It is to be presumed that the percentage is considerably higher for an increased number of colors and shades. Under artificial light many colors lose their distinctiveness.—T. R. WILLWERSCHIED.

they will remain where placed. They should be sufficiently heavy to remain in place during a high wind. Their bases should not be round, so as to avoid rolling if knocked over.

**SIMPLICITY:** Any mechanical device on which the safety of so many people depends must be simple in construction and infallible in operation. Provision must be made for protection against burnt-out lights, springs which become misplaced and broken, or any defect in the mechanism that will render the device inoperative. When once installed, considerable dependence is placed on such devices, and their failure is apt to be much more serious than if they had never been installed. (10)

### From the Standpoint of Relief of Congestion

**ONE-WAY TRAFFIC:** All one-way traffic streets should be more plainly indicated than is frequently done at present. Probably the best way of doing this is by means of several large arrows painted on the pavement at each intersection. In lieu of painted lines, white cement blocks have been used in Portland, Ore. They are made of hydraulic cement and celluloid, are hard and tough, have a glass-like finish, and are said to be permanent in color. (11)

**TRAFFIC LANES:** On wide streets congestion is relieved by painting separate traffic lanes for slow-moving and fast-moving traffic, the lane for slow-moving traffic being nearest the curb. Instead of paint, the white blocks described above might be used.

**LOCATION:** The location of the mechanical devices used merits considerable study. As a typical example, it may be said that it is the general custom to place mushrooms and dummy cops in the centers of intersections, all traffic making a left-hand turn being required to pass around them. This results in a very small turning radius and a consequently much reduced speed. Should not these markers be placed in the centers of the four property lines, and the marker at the center of the intersection be eliminated? This would result in a much larger turning radius and nearly twice the vehicular speed. Neither would it result in vehicles dangerously cutting the corner. What

(10) The committee makes the statement that any mechanism must be simple in construction. In the following sentence it is stated that provision must be made for protection against burnt-out lights, for protection against springs which do not function properly, or any other defects in the mechanism. If all of these safety features are carried out, a simple mechanism cannot be expected. We feel that a mechanism having the fewest number of parts possible and as simple as possible, with proper inspection and care, will give better results than a mechanism which is made complicated with safety measures that may fail to operate on account of their complicated construction.—L. W. McOMBER.

(11) We do not agree that the best way of marking is on the pavement by means of arrows, since a driver must know before he reaches an intersection what he is going to do at that intersection. We feel that the sign as used in New Orleans, consisting of a large porcelain-enamelled arrow placed at the corner, is much better suited for this service than pavement markings which in heavy traffic would be obscured by the vehicle ahead, and which in any case could not be seen until the intersection was reached.—L. W. McOMBER.

this means in getting more vehicles through an intersection can readily be appreciated when we consider that even if vehicles cross an intersection with undiminished speed, the capacity of the intersection is but 50 per cent of the capacity of either approaching street. (12)

Or where should traffic towers be placed? In the center of the intersection as in Detroit, or behind the property line as on Fifth Avenue, New York, and what are the relative advantages of each position? Towers might be placed above the center of an intersection and still not obstruct that intersection, by being mounted from a bridge supported on pedestals on the adjacent sidewalk or from adjoining buildings. A clear view of the tower could then be had from both main and cross streets.

### Classification of Mechanical Devices

Mechanical devices for the control of traffic can be further classified according to their method of control under four general headings: manually controlled devices; automatically controlled devices; semiautomatically controlled devices; and synchronously controlled devices.

#### MANUALLY CONTROLLED DEVICES

Under this heading we can place all standards, dummy cops, semaphores and certain types of mushrooms.

**STANDARDS AND DUMMY COPS:** An application of the principles above set forth of visibility, color, uniformity, simplicity, use of chains and stability, should make the satisfactory design of such devices a simple matter. Yet how often are these principles violated! The writer recalls a recent experience related by a friend in his home city. While driving into the entrance to one of the parks at dusk, he observed a machine going in the opposite direction, making a terrific racket, and dragging what appeared to be its whole rear end on the road.

(12) The idea of using four markers in place of one at an intersection is in the right direction, although the cost of installing such markers should be considered in making this recommendation. We do not see that any general recommendation can be made, since whether one unit or four units are used depends almost entirely on the width of the streets and the type of traffic which must be taken care of at the intersection. The question of location of traffic towers is another thing which depends almost entirely on the condition of the streets in which, or at the edge of which, they are placed. The idea of using an overhanging bridge seems almost fantastic. From observation and a careful study of the question, we believe that the time is not far distant when overhanging or central suspended traffic signals will be things of the past. Instead we favor low signals, about seven or eight feet from the ground, and located in general at the curb. This result is being brought about by the general use of visors on automobiles, making it impossible for a driver to see a signal at an intersection that is high enough above ground for traffic to pass beneath it. The chief purpose of such a tower would be to provide a place for an observer to have a general survey of traffic and to look out for unexpected occurrences up and down the street or boulevard. Such observation is not generally necessary. Traffic authorities are agreeing more and more that, for synchronous operation of traffic, the conditions must be determined from a careful study of traffic at various times of the day, and cannot be made to agree with local changes of traffic such as would be observed from a tower. If this is so, then we do not see the necessity in general of a tower for street traffic control.—L. W. McOMBER.

On going a little farther the trouble was easily diagnosed. A few days before the police had placed down the center of the roadway a series of standards bearing signs, "Keep to the right." The bases of the standards were round and black in color. The upright portion was also painted black, the signs had white letters on a red background, they were connected with chains, and were unlighted. When my friend saw them they were also scattered all over the road.

**SEMAPHORES:** The number of existing types is legion. The simplest type may be said to be the beach umbrella with the words "Stop" and "Go" painted on the sides and controlled by the traffic officer underneath, who is usually in as much doubt regarding the reading of his signs as the vehicle driver is concerning whether to stop or proceed. The correctly designed semaphore has been partially described in discussing the principle of visibility. In addition, it should have lights mounted on the ends of the semaphore arms, indicating their position at night. The writer would not use a light on top of the semaphore standard. The semaphore arms themselves should conform in color to the principles already indicated and should be constructed so that they can be placed in a neutral position when no traffic officer is on duty. If, in addition, the traffic officer is provided with a small light on his chest, we have the maximum in visibility, clearness and stability. (13)

**MUSHROOMS:** Mushrooms or buttons serve a useful purpose in outlining safety zones and traffic paths. They should be very strongly constructed, because they are occasionally run over by very heavy vehicles. They should never be placed upon the highway unless capable of being lighted at night. Their visibility should also be increased by the frequent use of white traffic paint. The type which disappears when struck by a vehicle would seem to be advantageous, provided that under service they prove to be mechanically stable. (14) (15)

(13) We take exception to the report of the committee as to the effect of a small light on the chest of the traffic officer. We do not see how a comparison can be made between this and the recommendation made at the first of the report as to the visibility of a traffic officer when lighted by a spot light or flood light. Considering the limited visibility of such a small light on the chest, the fact that the light cannot be seen in all directions, and its general insignificance, such a warning light seems of doubtful value.—L. W. McOMBER.

(14) With the section of the committee report that covers "mushrooms" we are in thorough accord, but in making these recommendations we feel that the committee has stated only in part the value of "mushrooms" or "buttons."

The principal function of this type of traffic light is to control the movement of traffic by reason of being located in the center of the street intersection. Lights of this type have been in use for many years, and actual experience has shown that mushrooms or buttons perform the following recognized functions in the control of traffic:

- a. Compelling full left-hand turns at slow speed
- b. Serving as a caution to drivers
- c. Keeping vehicles to the right
- d. Encouraging respect for safe driving

In this service they are far superior to the old-fashioned post, or standards frequently used for this purpose; the maintenance expense is much less; and they have the advantage of being always in the direct

## AUTOMATICALLY AND SEMIAUTOMATICALLY OPERATED DEVICES

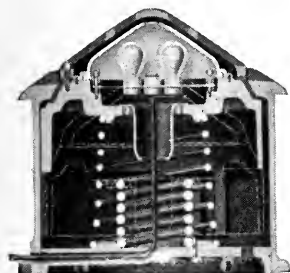
The automatic and semiautomatically controlled devices differ only in that the latter is capable of being operated manually or automatically at will. Under this heading we can place lighthouses, certain types of mushrooms, traffic lanterns, and traffic vanes. One of the principles involved is that every so often the signals change, thus allowing traffic to pass first in one direction, then in the other, the period of change being entirely controlled by the mechanism. The usual signaling is done by means of lights of various colors, either placed in mushrooms situated variously about the intersection, in traffic lanterns suspended over the intersection or attached to poles at the curb line, or by a combination of the two. One device, however, consists of an arrow with the word "Stop" on both sides. It is suspended in the center of the crossing by overhead wires and rotated by a motor directly above it. A whistle blows while the arrow is moving. It is illuminated at night and can be operated either from a box at the curb line or from fire headquarters. By such central control a complete route can be cleared in case of necessity. (16)

line of vision of the driver.

Compared to the rigid or stationary types of mushrooms or buttons, the disappearing style of street intersection traffic light is considered an improvement because of the yielding feature of the dome of this light. This traffic light performs all the regular functions of a stationary mushroom or button, and has in addition the features of safety to traffic, since accidents do not occur, because of the yielding dome, and of low maintenance on account of the same feature.



DISAPPEARING DOME TRAFFIC LIGHT



MECHANISM OF DISAPPEARING LIGHT

they can knock about, run over, or handle as they see fit. A traffic officer on an intersection must maintain his dignity and position and demand and receive instant obedience to his signals if traffic is to be handled successfully at that intersection. This holds for any marker used in the street as well as for an officer. If a unit that gets out of a driver's way is a success, then a white spot painted on the pavement would be equally good. Second, a driver who is in the habit

**LIGHTHOUSES:** The other principle involved is that of the flickering light. The actual device varies, some being lights placed in mushrooms, some on standards, some electrically lighted and operated, and some lighted and operated by gas. Advocates of the use of these devices claim that the intermittent flashing light stands out sharply and distinctly from all other lights and commands attention. This is undoubtedly true. Opponents, however, claim that it distracts the attention of the driver and produces fatigue, particularly at a time when he should concentrate on possible danger. A combination of the lighthouse and illuminated mushroom or button is used in some cities to define traffic paths and form central islands in large intersections when rotary traffic is instituted. (17)

**FLICKERING LIGHT A GOOD DANGER SIGNAL:** The writer believes that the use of such beacons should be confined to danger signals, indicating danger of the first degree, and installation permitted only under the strict supervision of the highway authorities. He also deprecates their installation as advertising mediums. As marine signals they have undoubtedly proved desirable and dependable. The highway signal is capable of somewhat further development.

of hitting an object and having it get out of his way is more liable to have a bad accident than the man who is careful at all times and does not trust to the supposed action of an object getting out of the way.—L. W. McOMBER.



NON-DISAPPEARING MUSHROOM LIGHT

(16) We do not agree with the committee that an arrow revolving at an intersection is better than or even as good as the use of signal lights as a regulator of traffic. Such an arrow does not have the visibility that a properly designed light has. The marker that turns is liable to get out of order because of the difficulty of maintenance on account of the position of the mechanism. It is too slow in turning, since it is a question of a motor starting up and stopping it, and it has the defect that any moving piece of apparatus has when exposed to the weather, that is, failure due to the wind, rain, sleet, or ice. The same objection would hold for this as for the center-suspended traffic lights; that is, the difficulty of seeing it.—L. W. McOMBER.

(17) I was interested in the statement that some of the opponents of the flashing lights advance the argument that they produce eye fatigue. This might be so if the lights were of a very high intensity, but I doubt if it is the case with the lights of the ordinary type in use in traffic beacons. Certainly, no such effect has been reported by any of our friends in the Lighthouse Department, who have watched flashing lights for much longer periods than would the average motorist.—L. C. PORTER.

In all such devices as have been mentioned, emphasis must be placed on simplicity. The device with a large number of moving parts and doing a number of different things should be scrutinized very carefully.

#### SYNCHRONOUSLY CONTROLLED DEVICES

The increasing congestion in our larger cities and the nearness with which our streets are reaching their capacity have made it desirable to control traffic in larger units than the single block. This has caused the development of the various synchronously controlled devices, practically any of the devices using lights being capable of this method of control.

**THE TRAFFIC TOWER:** The foremost example of this type of device is the traffic tower or crow's nest, either by itself or in combination with traffic lanterns and mushrooms. This is the most difficult type of traffic regulation. As usually practised, this type of control has simply minimized the delays in



BALTIMORE'S TRAFFIC TOWERS ARE LESS EXPENSIVE THAN THOSE ON FIFTH AVENUE, NEW YORK. THEY ARE MOUNTED IN THE CENTER OF THE STREET AND SIGNAL TRAFFIC IN FOUR DIRECTIONS

starting and stopping at cross streets, through the visibility of the signal over greater distances and through the movement of a somewhat larger unit than the single block. It has by no means reached the limit of its possibilities. It should be possible through accurate counting and charting of the traffic at each intersection to determine the exact length of time required for the traffic to pass through that intersection, every way, at every time of day.

**PLATOON CONTROL:** By a carefully worked-out scheme of progressively changing the traffic lights along the main thoroughfare, instead of synchronously changing them, traffic might move in platoons, so that a vehicle once having joined a platoon would remain in that platoon throughout the length of its journey. This platoon, having once started, would not stop until it had traversed the complete length of the main thoroughfare, except in case of emergency. Depending upon the speed this platoon was permitted to have, either the maximum capacity of the thoroughfare could be obtained, or the minimum length of time taken to traverse the length of the thoroughfare. This itself could be varied, depending on the time of day. (18)

(18) We are interested in the platoon control, but believe that this should be handled very carefully, since it is something that will not work out except in special cases, and then only on periods of certain length; in other words, it is in no way as general as the synchronous control of traffic.—L. W. McOMBER.



TRAFFIC TOWER ON FIFTH AVENUE, NEW YORK

**MASTER STREETS:** In most cases it will be found that a large degree of control will be exercised on traffic on the main thoroughfares by certain master cross streets, such as 42nd street, New York. By the progressive change of the traffic signal, however, the influence of this master street would be minimized and traffic having passed it would no longer be under its influence.

### Cumulative Effect of Traffic Delay

The writer desires to call special attention to the cumulative effect of a traffic delay. This is illustrated by a recent investigation in the Interborough subway. It was found that the delay of one train two minutes resulted within one-half hour in every train on the system being ten minutes late.

### Painted Lines

One feature of the painted line in assisting traffic which the writer has never heard mentioned is its value in helping overcome the

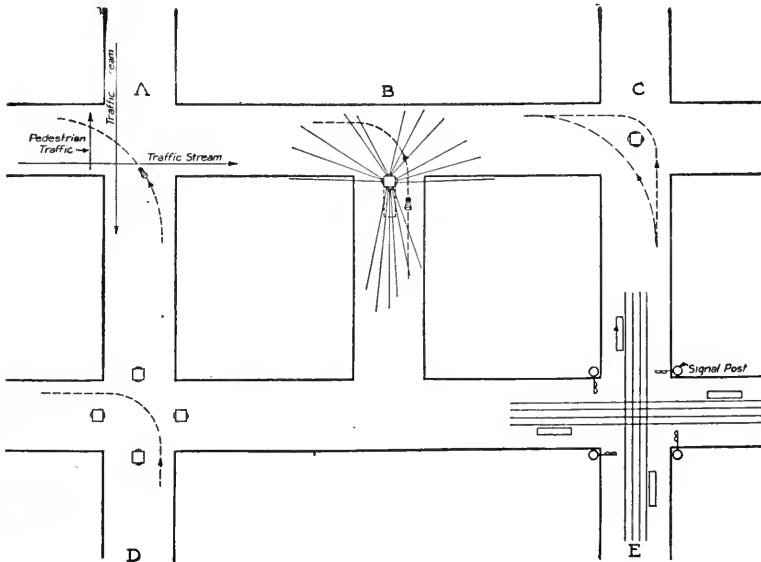
effect of glaring headlights. The reason why the bright headlight is so serious is that the driver coming from the opposite direction looks directly at it. I have found that it takes a conscious effort to look away. In cities the situation is further complicated by the many other distracting lights.

The painted center line supplies something for the driver to focus his attention upon, with the assurance that as long as he remains on his side of the line he will pass the cars coming from the opposite direction in safety. (19)

(19) The painted line down the center of the road is unquestionably a help. Outside of the additional cost, however, it would be still more advantageous to have a white line marking each edge of the road. It is a practise with most people that have done a great deal of driving against glaring headlights to watch the edge of the road, assuming that the other man will be far enough over to avoid a collision. It is much less trying to watch the edge of the road than to watch the center, as in watching the center you are looking toward the glaring headlights of the approaching driver. Furthermore, there is more danger when driving along roads where there are no sidewalks, due to pedestrians on the side of the road, and for this reason it is also necessary to watch the side of the road.—L. C. PORTER.

## Means of Reducing Accidents at Street Intersections

(The traffic tower illustrations on the preceding page and the following diagrams are from a recent pamphlet on "Lighting for Traffic Control," published by The Edison Lamp Works of the General Electric Company.)



The very dangerous condition in which a driver at high speed may cut across a corner is shown at A. He approaches one line of pedestrian traffic from the rear and intersects two lines of traffic at angles other than right, which produces great confusion. If a flashing electric crossing beacon is placed as in B, it serves to slow down the speed of an approaching car, prevents diagonal cuts, and provides a safety isle for pedestrians. The flashing electric light placed at the center of the intersection, as in C, serves to reduce the speed, and the majority of cars will pass around the beacon. The careless driver, however, is not prevented from cutting across the corner. Four beacons placed as shown in D will reduce car speed to a safe value, prevent cut-overs, and provide safety isles for pedestrians. Safety isles, as at E, prevent cut-overs and afford pedestrians a safety zone. Signal lights mounted on posts on the far corner of the street control the movement of traffic.



## Woodbury, N. Y., Is Prepared! (Is Your City, Too?)

The annual snow peril already hangs over many Northern cities. In some localities the public may be made to suffer for interrupted traffic, snowbound fire equipment, stalled ambulances, trolleys and all other traffic.

But not in Woodbury, N. Y.! Wm. McClellan, supervisor for that progressive city, tells how Woodbury has conquered the snow problem:

"Appreciating the importance of keeping our roads open during the winter months we purchased a 10-ton 'Caterpillar'\* with snow-plow. Before the tractor arrived there was an accumulation of about a foot of snow from the winter storms, and the 'Caterpillar' outfit cleared the roads without difficulty and kept them open throughout the winter.

"The power developed by 'Caterpillars'

equips them to go through practically any snow-storm and they are the only dependable method we know of for clearing snow from the highways. The 'Caterpillar' travels 3 to 4 miles an hour and the outfit is operated by two men. For our purpose we estimate that it should do the work for at least ten years, and we have a feeling of satisfaction in knowing that we are able to take care of a snow-storm at present that kept us laboring for days with all the forces we could command."

There's still time to protect the safety, health, and commerce of your city, no matter what storms may come. Let us give you interesting figures on the performance of 2-Ton, 5-Ton and 10-Ton "Caterpillars"—how they can serve your community the year round as well as in winter. Write today.

*\*There is but one "Caterpillar"—Holt builds it*

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# For Shorter Spacing of Fire Hydrants

By William R. Conard

Consultant and Engineer, Burlington, N. J.

**E**VER since the introduction of public water-supply systems, whether privately or publicly owned, every community has had the problem of making this supply available in sufficient quantity and in time to render efficient service in the fight against fire. We have seen within the past quarter of a century the development of the automatic sprinkler system, modern automobile fire-fighting apparatus, the auxiliary high-pressure system, and other equipment. The use of these would seem, at first thought, to leave no difficulty in overcoming in its earliest stages any ordinary fire. Sprinkler systems have repeatedly proved their value, as have also the auxiliary high-pressure systems. Likewise, it is now universally recognized that the modern motor apparatus has been an important factor in enabling firemen to be in service within the minimum amount of time after a call is received. Yet we are faced each year with rapidly mounting fire losses.

With the present and past types of structures and the building materials most generally used in this country, it cannot be hoped to eliminate fire losses entirely, but it should be possible to bring about a reduction in them. The question may be asked, "What more is there to be done?" To this I would answer, "Install hydrants at more frequent intervals, with mains of ample size to feed all hydrants with sufficient water in any given area for as long a time as may be necessary."

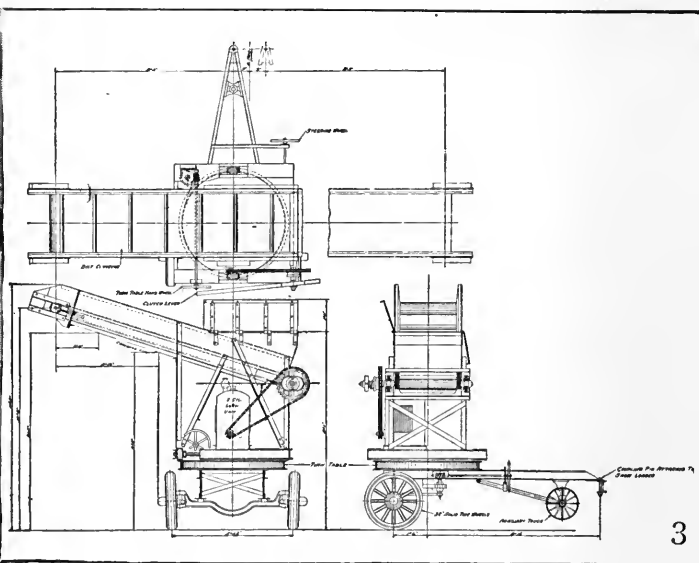
The fire hose used in most of our cities costs from 85 cents to as much as \$2.50 per foot, depending on its type and make-up. With a 6-inch pipe line this hose will deliver, at 50 pounds pressure at the hose nozzle, practically 160 gallons of water per minute through the 350 feet of hose, which, with the hydrant spacing in many communities, it is necessary to lay in the average built-up section. This represents an investment of about \$300 for one hose stream, figuring at the lower price per foot, to be expended at intervals of not over ten years.

Hydrant spacing as now in vogue varies from 350-foot to 800-foot intervals, or an average of about 500-foot intervals. To furnish and install each hydrant costs at the present time about \$100; the only other cost chargeable against it being a fraction of 1 per cent for maintenance, and practically no replacements. From a financial standpoint, therefore, it will be seen that it would be beneficial to reduce the hydrant spacings. But, in addition to the financial saving, there is an important saving in the time taken to get shorter lines of hose in service, and, provided that the mains and pressures are sufficient, there will be a marked increase in the volume of water, due to the lessening of the friction loss generated in the longer lines of hose. Therefore, I submit that it becomes more nearly true economy to place hydrants at intervals as short as 100 feet than it is to continue the purchasing of fire hose in larger quantities.

## A Comparison of Capital Investments

Let us now consider from the economic standpoint the installation of larger mains and higher pressures for serving the hydrants, as compared with the use of apparatus for taking the water from the mains and boosting it through the hose lines to get an efficient fire-stream. We will take, for example, a mixed locality of medium-size industrial and residential buildings, and a block where the streets are 400 feet apart in one direction and 600 feet in the other. This would, on a basis of 100-foot intervals, take 20 hydrants to enclose the entire block. With every hydrant operating to full capacity, a main of 20 inches in diameter at, say, 75 pounds pressure at the hydrant, would be required to supply the forty 2½-inch hose lines, each of which would average probably not over 200 feet and flow 10,400 gallons of water per minute at the nozzle. This would take a capital investment of approximately \$14,000 for the pipe laid, \$2,000 for the hydrants furnished and set, and not less than \$3,800 for hose, making a total of about \$20,000. On the





- No. 1—Barber-Greene Snow Loader at work in Milwaukee.  
 No. 2—Barber-Greene Bucket Loader loading scarified macadam in Little Rock. By the use of a Bucket Boom, Barber-Greene Snow Loaders can be converted into Bucket Loaders—thus providing a year 'round loading machine.  
 No. 3—Drawing showing design of the side discharge trailer for use in connection with the Snow Loader when side discharge is desired.

## The coldest and snowiest winter weather in history predicted by weather bureau officials

In the judgment of Weather Bureau Officials, this winter in New England will be the coldest and snowiest in history, surpassing even the violent weather of last winter.

Similar predictions are made for other sections of the country, because the heat of the sun has temporarily declined, and since September, 1922, has been at the lowest level ever known.

Coupled with the fact that the records show that there is just as much snow now in an average year as there was 30 years ago, this indicates that more attention than ever before should be paid now to the fight against snow.

Because of greater dependence on transportation of all kinds, snow must now be removed much more rapidly than formerly in order to avoid heavy losses to business and wage earners.

Many cities are speeding up snow removal and cutting its cost by using Barber-Greene Snow Loaders.

Chicago was the first to use one and found that it saved \$450 per 8-hour shift in 1920. The Boston Elevated Railway estimates that theirs does the work of 150 men. Schenectady, Philadelphia, Albany, Pittsburgh, Milwaukee, and Springfield, Mass., are among the many other cities in which Barber-Greene Snow Loaders are used.

Send for "Mechanical Snow Handling," which describes the Barber-Greene Snow Loader, the snow fighting plans of various cities, and the new Barber-Greene Side-Discharge Trailer.

More cities than ever before are buying their snow-fighting equipment before snow flies, in order to have it on hand when needed.

BARBER-GREENE COMPANY — Representatives in 33 Cities — 515 W. Park Ave., Aurora, Illinois

**BARBER**  **GREENE**  
**SNOW LOADERS**

other hand, mains large enough to supply the same area, with hydrant spacings of 500 feet, with 40 pounds pressure at the hydrant nozzle, would need to be of 12-inch diameter, and would call for 5 hydrants, 3,000 feet of hose and 3 pieces of pressure-boosting fire apparatus. This would mean an investment of approximately \$10,000 for pipe furnished and laid, \$500 for hydrants furnished and set, \$2,500 for hose, and \$18,000 for pressure-boosting apparatus, making a total of \$31,000; and there would be at most 12 lines of hose of 400-foot average length, which, with the pressure boosted to 75 pounds pressure at the pumper, would be able to throw 3,300 gallons of water per minute.

#### Advantages Summarized

The foregoing figures show that the short spacing of hydrants, with larger pipe lines, shortening of hose lines and using them without pressure-boosting medium, means a saving of more than \$10,000 in capital investment as compared with smaller mains, less frequent hydrants, lower pressures and mobile pressure-boosting apparatus. In addition to this, there is a difference of 7,000 gallons per minute in the flow of water to be thrown on the fire; and I contend that shorter hydrant spacing would give sufficiently greater flexibility to a community's fire-fighting facilities to be fully warranted, even though the cost had proved to be more rather than less.

## Milk as a Factor in Reducing Educational Costs

By Laura A. Cauble

Bureau of Nutrition, Dairymen's League Cooperative Association, New York City

THE increasing cost of public education is a problem which concerns every city; therefore, the economic use of school funds is involved in tardiness, in absence on account of illness, and in the number of repeaters in the grades who become liabilities. The causes of these delinquencies are often closely related to undernourishment of school children.

An undernourished child is a handicapped child, for whose education the city is responsible. A certain established standard of weight to height has been accepted as a test of undernourishment; but dry, lusterless hair and skin, pallor, puffy or excessive fatness, bad posture, slow reactions are as definite indices. Numerous accepted studies of growth and of undernourishment have pretty definitely demonstrated that the crux of it all is ignorance of the proper choice and use of the fundamental foods which supply materials for growth and which stimulate growth for pregnant mothers and for children. The Department of Health of the city of New York reported from 60 to 90 per cent of undernourishment in the public schools. This has been affirmed in a recent report of the Statistical Bulletin of the Metropolitan Life Insur-

ance Company, Vol. IV., No. 7, July, 1923.

What measures are at hand to meet this problem of public health, carrying such enormous economic significance? The Bureau of Educational Experiment in "Health Education and the Nutrition Class," reports a successful attack upon the problem in Public School 64, 1920-21: "The problem of undernourishment (or malnutrition) is fundamentally a lack of milk in the diet."

The Bureau of Nutrition of the Dairymen's League Cooperative Association, Inc., under the direction of Laura A. Cauble and in cooperation with the Division of Child Hygiene, Department of Health, in October, 1922, set up a constructive two-year program in Public School 17, New York City. In October the record of weight and height of the entire school registration of 2,050 showed 59 out of 100 were underweight and fully 90 out of 100 showed general symptoms of undernourishment. Every child in school joined the Health Club. Monthly records of weight and height, health talks by the League Bureau of Nutrition staff to teachers, mothers and children, the spirited work of the principal and teachers of the school, all contributed to the program. Since the fundamental food



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for growth and health is milk, a milk service of high-class milk in half-pint bottles was established to serve every child that was not assured at least a pint of milk a day at home. The parents paid for the milk, except in cases in which they were too poor. A school fund was created to provide for this. One of the first reactions of the boys was, "Gee, see the cream!"

In June, 1923, the record showed that only 22 out of 100 children were underweight; that the children were full of "pep," hair shiny, skin clean and clear, posture better; less sickness in school than heretofore. Fifteen schools had joined in this program during the year. The notable gain in health and scholarship was convincing. Not a cent of taxation was necessary to supply the need; not a new piece of apparatus. The families were as happy about the change in the children as were the teachers. Only 600 bottles were broken by the children during the year. Other schools are taking on the service, and health-building by right choice and use of food is on the daily program.

The Bureau of Nutrition of the Association has also inaugurated a nutritional survey in ten counties of the state of New York to discover something of the food habits of school children; that is, at what age children begin to leave milk out of the diet; also the attitude of parents. The cities of Canandaigua, Geneva, Owego, Ithaca, Cooperstown, Oneonta, Long Beach, and Garden City are included in this nutritional study.

The whole program of the Bureau of Nutrition looks forward to healthier, happier children, profiting fully by the education available in our cities. The immediate need of a pint of milk a day at school, as in Public School 17, can be met elsewhere without tax upon school funds, because parents are glad to buy health for their children. The economic waste of human life and effort, the cost of operating schools for restless, inattentive, hungry children may be greatly decreased by supplying the fundamental food needed for growth, and by teaching mothers what it means to bear and rear healthy, happy children.

## How a Threatened Plague-Spot Became a Golf Course

**T**HERE are numerous places with plague-spots which could have been easily prevented by foresight and by public-spirited action on the part of the people. A little investment in the future of our towns would, in many cases, be a wise investment, better than the get-rich-quick schemes which have taken so many thousands of dollars from the people. Here is an example of far-visioned action:

The town of Winthrop, Mass., has a marsh area of about 46 acres. People began to build houses in the edge of this marsh. As houses, they were none too good, and, worse than that, they were set so much below any possible street level that a proper base for sewers would require the use of piles; it would, therefore, require large outlays of public funds to meet the needs of the development, and the final result would not justify such expense.

It was a serious question what should be done. The development of the area for homes promised great expense. It promised a great many other things, both expensive and injurious to the community. It promised nothing that would be satisfactory.

The people took up the matter in town meeting, considered it carefully, and viewed, without alarm, but with candor and clear vision, the probable results in various directions and what might be done to meet the situation. It was decided that the best solution was to take

the entire tract under the playground act. The people forthwith so voted, at an expense of \$75,000, which later appropriations have brought up to \$119,541, to avoid a still greater expense and a lasting damage to the town.

The tract lay idle for some time. It was an expensive proposition to develop it in the right way. Finally a solution presented itself. A golf club desired a course. It was willing to lease the marsh from the town and develop it. So an agreement was made, the club to have the use of the marsh for 25 years, to spend on it not less than \$50,000 in permanent improvements and an annual rental of \$600, all improvements to revert to the town at the expiration of the lease.

There may have been better ways to solve the problem. There will be some question of foregoing the use of the area for so long a period; but there is not an item in the program that does the town any harm, for the golf club is made up of townspeople. The whole procedure is in marked and healthy contrast with that of many other places which have seen similar dangers developing and at the same time failed to see any way to avert them. The example of Winthrop may be safely commended to all cities and towns.

—From Bulletin No. 12, September, 1923, of the Massachusetts Federation of Planning Boards.



## "A ten foot snow drift *cured* this Town"

writes a Chamber of Commerce Secretary.

"Never again will we risk being caught as we were two winters ago. Streets choked up. Business at a standstill—so the City got busy and bought a 60 h. p. tractor with snow remover."

During the balance of the year, the Best "Sixty" referred to above is used for grading and general work.

A book entitled "Modern Snow Removal," which tells how progressive cities are removing snow and why they find it to their advantage is yours for the asking.

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# BEST TRACTORS

# What Is Asphaltic Concrete?

## A Definition and Outline of Proper Methods of Construction

By Chris P. Jensen

County Surveyor, Fresno County, Calif.

IN the lay mind, and even in the minds of many paving engineers, the term "asphaltic concrete" has been unfortunately used to include sheet asphalt mixtures, composed of sand and asphalt only; Topeka mixtures, virtually sheet asphalt mixtures with the addition of 10 per cent of not to exceed half-inch stone chips; and even to include oiled macadam pavements made by the penetration method.

As represented by the best construction methods of the present day, the term "asphaltic concrete" should be restricted to a pavement employing a well-proportioned mineral aggregate of approximately  $2\frac{1}{2}$  inches maximum size, mixed with the proper proportion of asphalt in a properly designed mixing plant, and laid under compression, with a resulting specific gravity of 2.40, corresponding to a weight of 150 pounds per cubic foot.

The following is from the Fresno County specifications controlling the manufacture and laying of the base course:

### Base Course:

Composition: The base course shall be composed of crushed stone, gravel or crushed gravel, sand, stone dust or lime dust, and asphaltic cement, in the following proportions by weight:

Passing a screen having $2\frac{1}{2}$ -inch round openings, and retained on a screen having $1\frac{1}{2}$ -inch round openings.....	35% to 45%
Passing a screen having $1\frac{1}{2}$ -inch round openings, and retained on a screen having $\frac{3}{4}$ -inch round openings.....	15% to 25%
Passing a screen having $\frac{3}{4}$ -inch round openings, and retained on a screen having 10 meshes to the inch.....	10% to 20%
Passing a screen having 10 meshes to the inch .....	20% to 30%
Asphaltic cement .....	4% to 9%
Materials passing the 10-mesh screen shall conform to the following proportions by weight:	
Sand passing a 200-mesh screen.....	5% to 10%
Sand passing an 80-mesh screen and retained on a 200-mesh screen.....	20% to 35%
Sand passing a 40-mesh screen and retained on a 10-mesh screen.....	3% to 45%
Sand passing a 10-mesh screen and retained on a 40-mesh screen.....	20% to 30%

For the purpose of these specifications, 1,000 pounds of asphalt concrete composition for base course shall be considered as sufficient to cover 24 square feet of roadway.

### (B) Mixing and laying:

(1) The plant wherein the materials are mixed shall be provided with at least four separate bin compartments for the storage of mineral aggregates.

All the mineral aggregate entering into the mixture shall be accurately weighed by means of multiple-beam scales. Asphaltic cement shall be controlled and weighed separately from the mineral aggregate.

(2) All mineral aggregate shall be uniformly heated in suitable driers, to a temperature of between 300 and 400 degrees Fahrenheit, previous to being conveyed to mixer.

(3) The asphaltic cement shall be heated to such a temperature that, when discharged into the mixer, it shall have a temperature of not less than 200 degrees nor more than 300 degrees Fahrenheit. At no time shall asphaltic cement be heated to a greater temperature than 325 degrees Fahrenheit.

On account of the close relationship existing between the base course and the wearing surface, and the resulting homogeneous character of the combined structure, I quote as follows from the same specifications pertaining to the wearing surface:

### Binder Course:

The binder course, after thorough compression, as hereinafter specified, shall be at least  $1\frac{1}{4}$  inches thick, and shall be composed of crushed stone, gravel or crushed gravel, sand, stone dust or lime dust, and asphaltic cement, in the following proportions, by weight:

Passing a screen having 1-inch round openings and retained on a screen having $\frac{1}{2}$ -inch round openings.....	30% to 50%
Passing a screen having $\frac{1}{2}$ -inch round openings and retained on a screen having $\frac{1}{4}$ -inch square openings.....	15% to 25%
Passing a screen having $\frac{1}{4}$ -inch square openings and retained on a screen having 10 meshes to the linear inch.....	6% to 17%
Passing a screen having 10 meshes to the linear inch .....	22% to 35%
Asphaltic cement .....	5% to $7\frac{1}{2}$ %
Materials passing a 10-mesh screen shall conform to the following proportions by weight:	
Passing a 200-mesh screen.....	10% to 18%
Passing an 80-mesh screen.....	30% to 45%
Passing a 40-mesh screen.....	60% to 80%

For the purpose of these specifications, 1,000 pounds of mineral aggregate shall be considered as sufficient to cover 66 square feet of base surface.

### Finishing Course:

The finishing course, after thorough compression, as hereinafter specified, shall be at least  $\frac{1}{4}$ -inch in thickness, and shall be composed of sand and asphaltic cement, in the following proportions, by weight:

Sand passing a 200-mesh screen.....	10% to 20%
Sand passing an 80-mesh screen and retained on a 200-mesh screen.....	20% to 30%
Sand passing a 40-mesh screen and retained on an 80-mesh screen.....	30% to 40%
Sand passing a 10-mesh screen and retained on a 40-mesh screen.....	20% to 30%
Asphaltic cement .....	10% to 14%

For the purpose of these specifications, 1,000 pounds of finishing course mixture shall be considered as sufficient to cover 400 square feet of surface.

The base course in these specifications contemplates a  $3\frac{1}{2}$ -inch thickness, and the wearing surface specifications contemplate a thickness of  $1\frac{1}{2}$  inches, making a total thickness of the combined structure, of 5 inches.

Particular attention is called to those



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May we tell you how many progressive municipalities, small as well as large, in the Snow Belt, are protecting the comfort of their people every winter with Model "W" Industrial Cletrac, the "snow fighter that never quits" and how this same tractor is saving them money in Spring, Summer and Fall on an amazing number of road and maintenance jobs?

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clauses in the specifications requiring 1,000 pounds of mixture to cover only a specified maximum area of surface. We have found this specification to work out most successfully, and incidentally it removes one of the greatest points of contention between the contractor and the owner. This ratio of weight to area is based upon a mineral aggregate having a specific gravity of 2.80; if a mineral aggregate having a less specific gravity than 2.80 is used, it will result in a slightly thicker pavement, but at no extra expense to the contractor, for the reason that mineral aggregate in California is commercialized on a tonnage basis.

The actual proportions of mineral aggregate used in Fresno County work, and being in conformity with the requirements of the specifications, will generally run about as follows:

From bin No. 4 (large rock).....	450 lbs.
From bin No. 3.....	200 lbs.
From bin No. 2.....	100 lbs.
From bin No. 1 (fines).....	250 lbs.

To this is added 45 pounds of asphalt, of approximately 45 degrees penetration, standard No. 2 needle; the ductility of the asphalt is never less than 100 centimeters by the standard ductility test.

The fact that in Fresno County asphalt of 45 degrees penetration is specified, does not necessarily point to the use of this consistency throughout the United States, or even the West. The proper penetration to be used in any particular community should be the expression of the engineer's best judgment, after carefully considering climatic conditions.

It has been common practise in the manufacture of asphaltic concrete to use hydraulic cement, or lime dust, or the by-product of sugar beets, to supply the necessary quantity of 200-mesh material, oftentimes lacking in fine aggregates. We wish to emphasize our experience that this practise results in a much inferior pavement than if these adulterations are eliminated; we therefore insist upon the importation of a sufficient quantity of 200-mesh sand to bring the mineral aggregates to the proper proportions.

The paving plants operating in the West are usually of three sizes—of 1,000 pounds, 1,500 pounds and 2,000 pounds capacity respectively. The devices for heating the mineral aggregate may be of the even drying type, or by direct flame applied as the mineral passes through rotary steel cylinders. The present tendency seems to favor

the latter type with the use of 48-inch cylinders.

### Mixing and Laying

Considerable expert knowledge is required for the proper mixing and laying of an asphaltic concrete pavement, and the lack of experienced labor and inspection will in nearly every case prove disastrous. A sieve analysis of the aggregates should be made at least every hour at the plant, so that any material variations in the uniformity of the aggregate may be instantly detected and corrected. It is necessary that the asphalt be stored in water-proof containers, because the infiltration of even the smallest amount of moisture will cause the asphalt to form. Great care must be exercised by the mixer operator in weighing the proportions of aggregate from each bin; it is very easy to permit a few extra pounds of aggregate from any one bin to enter the mixing mill, by the careless manipulation of the scales and gates.

In warm weather we prefer to keep the temperature of the mixture from 250 to 260 degrees Fahrenheit; in cool weather, we generally employ a temperature of about 280 degrees Fahrenheit, subject to variations made necessary by conditions of distance hauled.

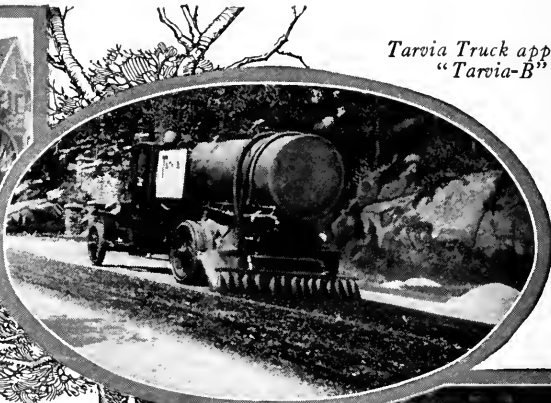
In spreading the mixture on the grade, we insist that the truck drivers become so experienced that the material can be spread upon the previously measured area so uniformly as to render it necessary to make but little adjustment with shovels. We find this method to be superior and more efficient than the use of mechanical spreaders.

### Rolling the Pavement

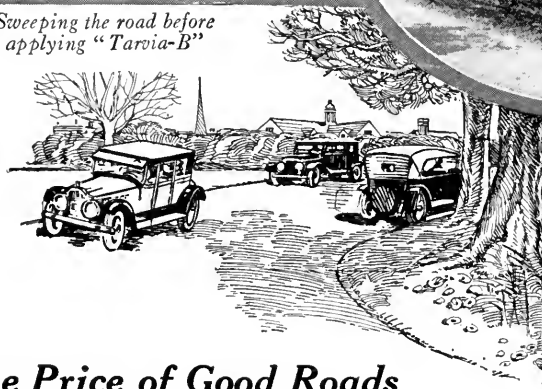
Rolling is a very important step in the construction of a proper asphaltic concrete pavement, and particular attention is given to this detail. Two 12-ton 3-wheel rollers are always on the job, and rolling is continued until no further compression is possible, and until the mixture has assumed its proper specific gravity and will show no further marks by the rollers. Transverse rolling is always employed on city streets, but in the case of comparatively narrow highways, transverse rolling cannot always be accomplished; diligent diagonal rolling is, however, required. We are aware of the usual practise, in the employment of one 12-ton roller and one 5-ton



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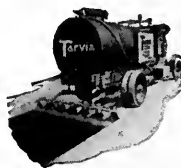
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tandem roller on asphaltic concrete construction. Our experience has brought us to the conclusion that the small tandem roller is of very little practicable use for any purpose other than, possibly, a finer polish; we therefore prefer to employ two rollers of the heavy compression type.

Inspection service is strenuous, both at the plant and on the street. Every operation is under constant control, and the resultant mixture very carefully watched. The plant inspector indicates the weight of every truck load of material on a card, which is taken by the truck driver to the inspector on the street, who then marks off the proper area upon which the material should be spread. Adjustments are made where necessary owing to inequalities in the subgrade.

Raking is also an important factor in producing good results, and it is useless for any inexperienced man to attempt this work.

In connection with the use of rollers, a good deal of influence is being brought to bear upon engineers, by road machinery sales agencies, for the substitution of gasoline rollers for the old standard steam-operated rollers. I desire to voice our disapproval of such a change. We permitted a trial of gas rollers, but find, as expected, that the features of the positive-acting clutch and exploding gas are both productive of results detrimental to the smoothness of the pavement, particularly when the roller shows signs of wear.

As an aid to maximum plant output, we find it advisable to have provided a compartment under the mixer to receive the contents of a mixer batch. By this expedient the mixing of materials will not be delayed by reason of a short delay on the part of trucks.

In ordinary weather, a load of mixed materials will retain its temperature remarkably well. We have frequently hauled this material 20 to 30 miles with a loss of only 4 or 5 degrees in temperature.

We do not hesitate to permit traffic on the base course, after it has cooled. In fact, we frequently lay a stretch of base 5 miles or more in length and permit the contractor to haul the wearing course mixture over it, up to a total gross truck load of 12 tons. We encourage the distribution of this traffic over the entire width of base, so that any serious defects in the subgrade

will develop before the application of the wearing course, and any unevenness be corrected and absorbed by it. We find, under such procedure, that after a few weeks of traffic over the complete pavement, the whole structure has become blended into one compact and integral mass.

In mixing the materials in the plant, we prefer that the coarse aggregate be placed in the mixing mill first, and then the fines and asphalt added gradually, so as to produce a complete and effective covering of every article of stone with the asphaltic cement.

### **The Coarse Aggregate**

Fresno County has employed coarse mineral aggregates both of rounded gravel surfaces and of crushed quarried stone, in which, of course, all surfaces are angular. The results of our experience are interesting. Contrary to the usually accepted theories, we obtained the better results with the use of round surfaces. We find that the crushed rock will bridge, one particle of stone against another. This bridging action is so effective that, unless crushed under the roller, it will prevent a thorough compaction. On the other hand, gravel aggregate, having rounded surfaces, will permit of sufficient displacement, internal movement, or adjustment, under the action of the roller, so that a much greater degree of compaction will result than in the case of quarried stone.

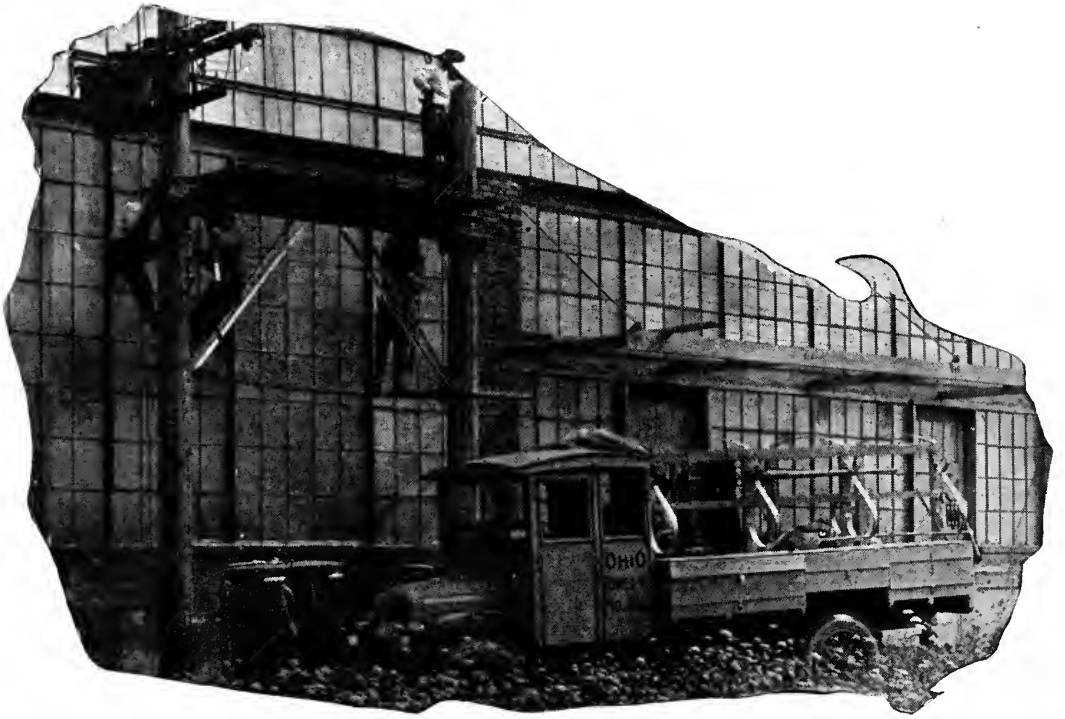
The ultimate result in the case of a gravel aggregate is a smooth riding surface, and in the case of quarried rock the fine aggregate tends to settle into the larger interstices of the coarse aggregate after a period of two or three months' traffic, and results in a slightly corrugated riding surface.

In the West, where asphaltic concrete base is used, 85 per cent of the pavements are of a total thickness of 5 inches or less, including the wearing surface.

No pavements, properly laid, on a properly prepared subgrade, and laid to a thickness of 5 inches, have failed. We consider this thickness sufficient for any traffic permitted under present state laws.

### **Detecting Faults in Subgrade**

One advantage in a pavement built as outlined above, that seems to have been overlooked in professional papers, is that a faulty subgrade can usually be detected



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before the pavement is completed, and correction made before serious injury will result. I refer to the fact that if the percentage of moisture in the subgrade exceeds 10 per cent, the heat of the mixture, emphasized by the action of the roller, will bring the moisture from the subgrade up to the surface in such measure that the mixture, being still hot and extremely plastic, will yield under the roller, to the extent of disintegration. When such a condition develops, the faulty subgrade must be corrected before paving can proceed.

This does not mean that the mere fact of laying a pavement properly is a guarantee against future settlement in certain areas of subgrade; I have seen many instances where weaknesses have developed in a subgrade, sometimes from the action of gophers, sometimes from the natural weaknesses of the soil, and sometimes from unexplained causes. Where such defects do appear, we may readily avail ourselves of another important advantage of an asphaltic pavement; that is, that a repair can easily be made by the addition of an asphaltic patch. We can always be assured that such a patch will thoroughly anneal and blend with the old material. We, therefore, have a repair made upon a firmer foundation than before, at very little expense, and at only a few moments' inconvenience to traffic. In order to correct an error of a contractor, such a patch, averaging  $\frac{1}{2}$ - to  $\frac{3}{4}$ -inch in thickness, was successfully placed over the entire width of a highway for a distance of  $\frac{1}{2}$ -mile.

There are those who advance the argument that asphaltic concrete will not maintain its form unless supported by rigid curbs at the edges. Such advocates probably have in mind some form of oiled macadam.

Contrary to the ordinary understanding that the deterioration of an article is in proportion to its use, we find, in the case of asphaltic concrete, that the full efficiency of the structure cannot be maintained except as it is put under a reasonable traffic

duty. The slight internal movement of the particles in the structure has the effect of maintaining the high degree of resiliency so desirable in an asphaltic pavement. One has but to find an asphaltic pavement carrying very little, or no, traffic; it will be observed in such pavements that cracks and fractures appear, due to the non-use of the structure. The impact of traffic seems to forestall such a condition by reason of the malleability and resiliency of the asphaltic cement. Should serious fractures, from any cause, develop in an asphaltic pavement, they are readily healed by the application of a small amount of asphaltic mixture, and the water-proof qualities restored. In attempting to correct such fractures in a hydraulic concrete pavement, the space can be filled, but the water-proof element will not be so effective as in the case of asphaltic concrete.

The healing and self-curing characteristic of asphalt concrete is well illustrated by an experience in Fresno County. An asphalt concrete pavement was laid over an extremely treacherous adobe subgrade; a drainage structure was constructed underneath the pavement, but for some reason storm water followed the outside of the culvert, causing the usual expansion of the adobe, and with it the pavement was lifted to the height of about 6 or 8 inches over the designed grade line. In going back some time later with the purpose in view of reconstructing this piece of pavement, we were much surprised to find that the pavement had receded to its proper level; no injury was apparent and therefore nothing was done. No evidence remains of the upheaval.

Another peculiar instance of the shock-absorbing qualities of asphaltic concrete occurred in the city of Spokane in February, 1923. Owing to a short circuit many explosions in gas-mains occurred in the business section of the city, causing considerable breakage of window glass but no injury of any nature to the asphaltic pavement.

"Road Work That Can Be Done in Winter." Did you read this helpful article in the November issue?

*The illustration is a reproduction from an oil painting of a King Ornamental Lighting Standard in Lansing, Michigan.*

Lansing, Michigan, will be the first city in the United States to have an architecturally uniform system of Street lighting units. King Poles of French design equipped with General Electric Novalux lighting units will be used.



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# History and Helpfulness of the Christmas Seals

By Elizabeth Cole

WE should still be regarding tuberculosis as an inherited malady had certain persons with a vision not worked together to bring about a better and a more intelligent treatment of the tuberculosis situation in this country. Sixteen years ago, through the influence of an article by Jacob A. Riis in *The Outlook*, telling of Christmas stamps sold in Denmark for the support of a children's hospital, Miss Emily P. Bissell of Wilmington, Del., sold seals for the first time in this country and raised \$1,000 towards paying for the site of the first tuberculosis sanatorium in Delaware—Hope Farm. These penny stickers that could be bought by rich and poor, children and grown-ups, became popular at once. From the first it was realized that the organized movement to combat tuberculosis could have wide-spread educational value; that by means of stamps that everybody could buy a chance was presented to teach health as a way of preventing tuberculosis.

Throughout the country during the Christmas season we have become accustomed to seeing the posters, coin boxes, car cards, magazine articles and advertisements, as well as the bright little seals themselves, on packages and letters. The enormous scope of the campaign to stamp out tuberculosis can scarcely be put down in black and white. Its growth has come about gradually and only because of sincere and wide-spread cooperation. With the National Tuberculosis Association as the hub in the wheel, there are now over 1,200 state, county, city, and town branch associations as the spokes in this huge wheel. Organized and systematic, the business of health nowadays is carried on by these various associations with trained, intelligent workers and broad practical goals—as other business concerns conduct their work. And more and more, all varieties of health agencies are becoming interrelated and working with better understanding and intelligent cooperation for the greatest good of the community.

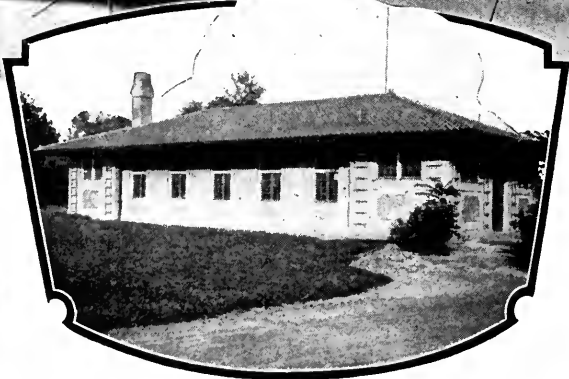
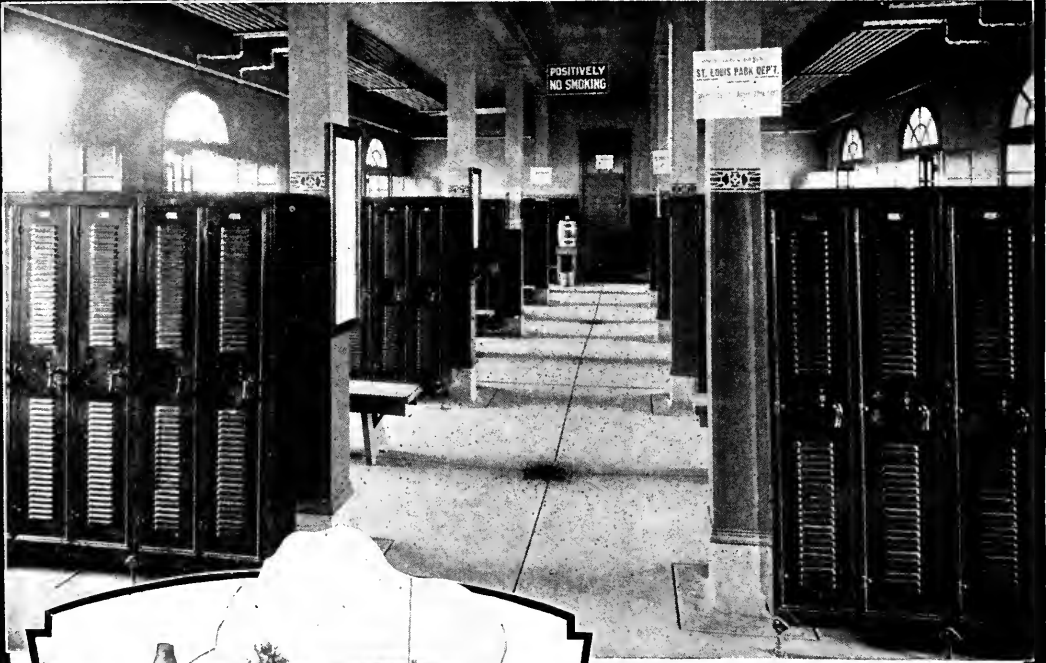


The double-barred cross is the symbol and official emblem of the National Tuberculosis Association and its state and local agencies, although until 1919 the American Red Cross had sponsored the Christmas seal sale. This emblem stands for all that has been done and all that can be done in preventing and controlling the great

white plague, which in 1907 was taking the lives of 200 of every 100,000 persons in this country. To-day, the rate has been cut in half and is approximately 100 per 100,000 persons. During these 16 years there have been over 8 billion Christmas seals distributed. Over one billion are in circulation this year. Three hundred thousand seals were sold in 1907; in 1922 over 384 million seals were sold; and in this period over 25 million dollars have been raised.

Briefly summarized, the specific media used to-day in the organized work supported by the Christmas seals are: (1) approximately 650 institutions making provision for tuberculosis patients (16 years ago there were but 100) with approximately 66,000 beds; (2) over 555 clinics and dispensaries where persons may go for periodic physical examinations and there discover the disease in time for treatment; (3) at least 12,000 public health nurses, of whom a large majority have had special training in the care of tuberculosis and can detect disease in the schools and homes and give instruction and help in the ways of health; (4) research workers who collect data of untold value; (5) statisticians who are continually at work on necessary information; (6) publicity experts who in the past 16 years have distributed over one million pieces of printed matter through circulars, pamphlets, newspaper articles, to appeal to all ages, types and classes of both native and foreign-born; (7) the Modern Health Crusade, a movement which has since the Crusade started enrolled throughout this country and abroad over 8 million school children who have learned daily health habits; (8) at least 3,000 open-air schools, preventoria, out-





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Potomac and DeKalb Sts.

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door camps, for children who are predisposed to tuberculosis; (9) lecturers, speakers, demonstrators and exhibits, motion pictures, health plays and pageants, posters, stories.

EDITORIAL NOTE.—Municipal and county officials and civic organizations desiring to cooperate in the distribution of Christmas seals or in other activities for the prevention and relief of tuberculosis, can obtain much valuable aid from the National Tuberculosis Association, the headquarters of which are at 370 Seventh Avenue, New York.

## Community Christmas Caroling

TEN years ago outdoor Christmas Eve caroling, especially by itinerant groups through the streets of town and village, was almost unknown in this country. The beautiful old custom that had once been universal in England had all but died. The widespread adoption of the community Christmas tree did much to bring the carols to public attention again. Yet the singing of the charming old Yuletide songs for the public benefit was all too infrequent, and the general absence of the "waits," the traveling bands of carolers, in their picturesque red cambric capes, was particularly regrettable.

The National Bureau for the Advancement of Music, 105 West 40th Street, New York City, which is interested in extending more widely the influence and utilization of music among the American people, saw in the Christmas caroling one of the most inspiring uses of song, as a satisfaction to the singer, a joy to the community, and a means of expressing the Christmas spirit. In 1917, therefore, shortly after its own inception, the Bureau, at the suggestion of C. A. Grinnell, of Detroit, began working actively for the country-wide expansion of the custom. It pointed as a model to the splendid organization for Christmas singing that had been worked out on a city-wide scale in Detroit. As a further

aid to the movement, the Bureau issued its booklet, "Christmas Eve Caroling Being Revived," giving a brief outline of the history of the custom and instructions for procedure to those interested in carrying out the plan locally.

The movement has grown with astonishing rapidity, as the following figures taken from the Bureau's record will show:

30	cities and towns	December, 1918
110	" " "	" 1919
330	" " "	" 1920
667	" " "	" 1921
*1154	" " "	" 1922

\* This figure does not include 300 cities and towns included in the previous surveys from which no reports were received as to 1922, although a large percentage of them undoubtedly observed the custom.

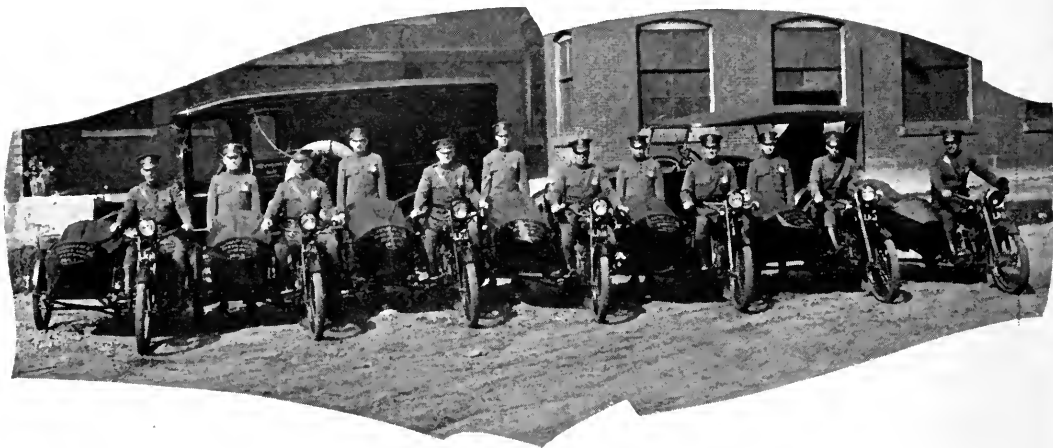
Some of the cities were large, others small. Some had caroling groups enough to cover the entire area, others for but one or two districts; while in still others carols were sung around the community Christmas tree only. The information was gathered from newspaper clippings from all parts of the country, as well as by direct correspondence, and it is probable that many cities were overlooked. No places were included where the caroling was simply an indoor or church event.

## Municipal Christmas Trees

THE municipal Christmas tree movement has grown rapidly within recent years, until now not only the larger cities but many of the smaller communities as well erect a Tree of Light around which the citizens may join in celebration of the Christmas season.

The accompanying picture shows the community tree of Houston, Texas, as it stood in the Market Square last year, illuminated each evening from December 18 until the New Year. The Houston Recreation and Community Service Association, under whose auspices the Christmas festivities are held, writes that the tree will again be lighted this year during the same period. Groups of carolers will sing at the tree each evening preceding Christmas Day, and tableaux will be presented in connection with the carols. "Peace on Earth" will shine forth in electric lights on the arch over the entrance through which the tableaux and singers will appear. The carolers will also visit all the city's institutions for the sick and shut-in, and it is hoped in this way to give every one in the community an opportunity to enjoy the Christmas waits.





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More speed. Less vibration. Prevent overheating.

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**4.—Handsome olive green finish, maroon striped.**

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Milwaukee, Wis.

# Harley-Davidson

## The Motorcycle

# Varieties of City Health Officers

By James A. Tobey

Administrative Secretary, National Health Council, New York

THE number of cities in the United States with populations over 10,000 is now 759. Every year since 1916 the United States Public Health Service has issued in one of its weekly public health reports a directory of the health officers of these cities. If one likes to dabble with data and disport himself with statistics, this list offers ample opportunity. Analysis of the 1923 presentation, for instance, brings out some interesting and important facts.

In the first place, only 45 per cent of the health officers named are on a full-time basis. The percentage increases but slowly from year to year. In 1922, 42 per cent of the health officers of a similar group of municipalities were employed full time, while in 1920 the percentage was 38. At this rate of

increase it would be 1945 before all these cities have full-time health officers, and it seems fairly certain that not all of them will have attained such an ideal condition even by that time. Every sanitarian agrees that the maximum efficiency in public health endeavor requires full-time officials.

The majority of the present-day health officers are, as might be expected, medical men. About 80 per cent are possessors of the "M. D.," the remainder being laymen. This is about the ratio which has been maintained for the last few years. In 28 states every health officer is a medical graduate, though such an honor does not necessarily mean that he is an expert in public health. The entire list, unfortunately, shows very few possessors of public health degrees, though possibly some of the degrees may be omitted. Three of the physicians also have the doctorate in public health and two of the non-medical men

have this "D. P. H." Two of the doctors are also L.L.B.'s, which ought to be a good combination. There are four veterinarians, one pharmacist, and one registered nurse, not to mention a dentist and a doctor of philosophy. It used to be more fashionable to have veterinary doctors as guardians of human health, as there were seven last year and even more in previous years.

Looking into the data a little further, we find that the medical men are mostly the ones who serve on a part-time basis. The reason is undoubtedly that the salaries paid to most health officials are so abominably low that a man who is able to practise medicine must do so on the side in order to make both ends meet. Possibly some of the laymen sell a little furniture when not too

## All-Time Health Officers Still in the Minority

It is a sad commentary on American municipal government that less than half of the cities having 10,000 or more population consider the public health of sufficient importance to entrust its administration to an official who devotes full time to his duties. Rarely, if ever, does one hear of part-time police chiefs or superintendents of schools. Certainly health is of as much significance as the safety or education of a community.

busy, or trifle with real estate. Most of these lay health officers serve on a full-time basis, however. In the great state of New York, where every health officer is required by law to be a physician, only 9 out of 56, or 16 per cent, are full-time. In Massachusetts, on the other hand, where 61 per cent of the health officers are non-medical men, three-quarters of these laymen serve full time, whereas less than one-fifth of the doctors are full-time officials. A similar condition exists in Pennsylvania and New Jersey, where it has been demonstrated that a well-trained layman can make as efficient a health administrator as any one else. Only eight states have all full-time city health officers, and three of these have only one such official, and two only two such officials. Alabama, Georgia, and South Carolina have nothing but full-time municipal health officers, be it said to their credit. Four states have no full-time officers.

# The Bear Tractor



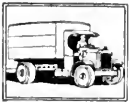
Removing snow quickly in a New England City.

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The truck uses about 50% of its engine's maximum power and gives comparatively little engine trouble.



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DO YOU realize that in the passenger car the average horsepower actually used is but 20% of the maximum capacity of the engine? And in the truck, but 50%?

The use of only a fraction of the maximum engine capacity not only makes sure of securing the **full rated** power but also insures **reliability** of performance which could not be expected from an engine operating at or near its maximum.

The Bear Tractor power plant, like that of the truck, is designed for surplus power. In order to develop its full rated horsepower, the Bear requires only about 50% of its engine's maximum capacity. The Bear is rated at 25 horsepower at the drawbar. To deliver this, the engine is required to furnish approximately 35 horsepower, which represents less than one-half of the maximum capacity of the Bear Engine.

This large reserve power in the engine makes the Bear Tractor, in point of dependable power, comparable with the best trucks. Its engine, operating with such great reserve, gives the Bear Tractor user remarkably satisfactory results in building and maintaining highways, removing snow, hauling logs, freighting in oil fields, pulling farm implements or doing any other tractor work. The Bear power plant means greater reliability—a primary essential to a tractor that operates at low cost per unit of work done.

BEAR TRACTORS, INC.

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NEW YORK CITY

## The Tractor that Delivers its Power to the Drawbar

The titles given to these local officials are extremely numerous, there being over fifty different designations. Two years ago the Committee on Model Health Legislation of the American Public Health Association recommended that the term "Health Officer" be used as the standard. Possibly as a consequence of this recommendation, this term is actually employed in 381 instances, or 51 per cent. "Commissioner of Health" or its variation, "Health Commissioner," is the next most popular; it is much in vogue in Ohio. In Massachusetts, "Agent" of the Board of Health seems to be the title generally favored.

Some vital data are not brought out in this list of the Public Health Service. For instance, we should like to be informed how many of the health officers have had health examinations themselves, that is, periodic medical inventories of their human machines. It would be interesting to inquire how many of the health officers ever took public health courses, and how many keep posted on current progress in public health and other little matters which leading sanitarians believe are more or less of value to the profession. These questions will probably remain unanswered.

### More and Better Sanitarians Must Be Trained

Whatever a health official is called, or whatever education he may or may not possess at present, there seems to be a growing opinion that municipal health work could be somewhat improved. As a starter, more and better sanitarians must be trained.

Once secured, they must be given full-time positions in which politics play no havoc and in which compensation is adequate and commensurate with the training, professional ability, and responsibility required. Whether this will ever be accomplished remains to be seen. A conference was called to discuss the matter some two years ago, and a large number of eminent persons met in Washington under the auspices of the Public Health Service and did a vast amount of talking about it. The American Public Health Association has recently taken a forward step in securing funds to continue the excellent work of its Committee on Municipal Health Department Practice, which, among other things, plans in the future to issue awards to communities which show the best results in health administration.

In order to train sanitarians properly, it would seem most feasible to maintain a course of study of four years leading directly to the degree of Doctor of Public Health. Such a course should be parallel to the medical course but not part of it, and it should be given in a school of public health where the instructors are practical men and not theorists. Public health is not a branch of medicine, but is a science by itself, with preventive medicine, sanitary engineering, sociology, economics, education, law, and statistics forming its component parts. When we get to the point where education of health officers proceeds along these lines, real experts will be turned out and the cause of public health will be immeasurably advanced.

## Rapid Growth of County Health Nursing Organizations

THAT public health nursing in the United States has made marked progress in recent years is evident from figures presented by Miss Mary Augusta Clark, consulting statistician of the National Health Council, in an article in *The Red Cross Courier* for September 1, 1923. In 1909, 566 organizations were maintaining public health nursing services carried on by 1,413 graduate nurses. In 1922 there were 4,040 organizations employing 11,548 graduate nurses. There are thus seven times as many organizations reported in 1922 as in 1909, and eight times as many nurses.

A notable feature of this progress in the general field of public health nursing is the wide-spread development of county health nursing organizations. In 1909 there were only 12 organizations with 20 nurses providing county-wide services, while in 1922 there were 957

county organizations with 1,434 graduate nurses. Of these 957 organizations, 281 report that they are maintained wholly or in part by county funds, while in 1909 only one organization made a similar report.

Only two types of county organizations—visiting nursing associations and tuberculosis societies—existed in 1909. The 957 organizations reporting in 1922 include county government agencies, county public health or public health nursing organizations, tuberculosis societies, Red Cross chapters and branches, and other voluntary agencies. These important tendencies toward cooperative effort and toward meeting rural needs are of recent development. The county organizations increased in number slowly at first, but more rapidly in the last few years under the stimulation of Red Cross interest in this field.

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Reversible  
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# Cleveland Elects with P. R.--and Boston Wants It, Too

FOR those who watch the signs of the times in municipal government, two recent events of special significance are Cleveland's first election under its new city manager charter with proportional representation, and the recommendation by leading organizations in Boston that P. R. be incorporated in the proposed new charter for that city.

In discussing the Cleveland election at the annual convention of the National Municipal League in Washington last month, Dr. A. R. Hatton expressed the opinion that in municipalities where the city manager plan has not given satisfactory results, the chief trouble has generally been with the council rather than with the manager. This is due to the fact that councils elected otherwise than by P. R. are often representative of one dominant political group, and that the defeated group naturally feels bound to oppose the action of the winners. Proportional representation, on the contrary, results in the election of a council which represents opinion as a whole. Dr. Hatton showed also that the original American plan of voting was based on a much more homogeneous citizenship than exists to-day, and that P. R., in giving proper voice to minority groups, creates a representative system that is in harmony with the facts of modern life. In the discussion which followed, Erie C. Hopwood, Editor of the *Cleveland Plain Dealer*, expressed his preference for party control of elections and policies, but stated that if group representation and the opening of the doors to independent candidates are desired in the election of a city council, P. R. will accomplish the purpose.

Boston will follow the example of Cleveland in the adoption of proportional representation as a method of election, if the advice of some of its leading commercial and civic bodies is followed. The following paragraphs are from a recent editorial in the October 29 issue of *Current Affairs*, the weekly bulletin of the Boston Chamber of Commerce:

"Proportional representation is a political device by which each shade of political thought

and opinion secures its exact ratio in the legislative body, whether it be for the city, state or nation. It secures this exact ratio, which is what the present system in this country was expected to produce but which frequently is defeated by the fact that a particular group or party may have a bare majority in three-fourths or four-fifths of the electoral districts. It is possible under the present system for 51 per cent of the voters to have all the representatives. Proportional representation would give 51 per cent of the voters just 51 per cent of the representatives, and the 49 per cent minority 49 per cent representation, which, obviously, is but fair, and is the basis upon which all financial corporations are governed.

"At a town meeting, every shade of thought secures free play and expression. Proportional representation in much the same way, through chosen representatives, gives voice to each appreciable group or following. Here in Boston it is now favored by the Boston Chamber of Commerce, the League of Women Voters, and the Boston Charter Association.

"Proportional representation is used in one form or another by two hundred and fifty million people in all parts of the world. It was adopted as one of the cardinal features of the new organic scheme in Ireland, where it was favored with surprising unanimity by all factions in that country which has come to be notorious for its bitter warring divisions. The arguments for it are obvious and the plan has won its way to date through the merit of sheer logic and reasonableness."

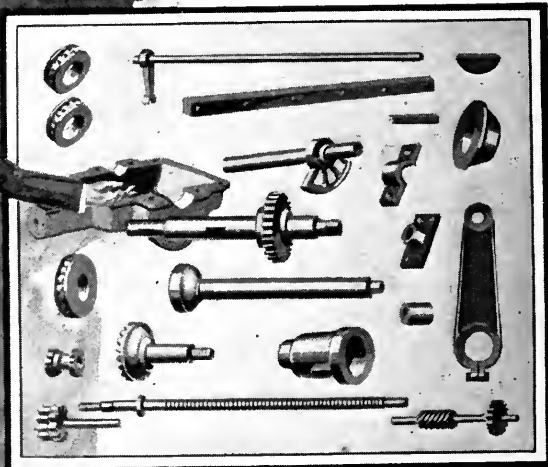
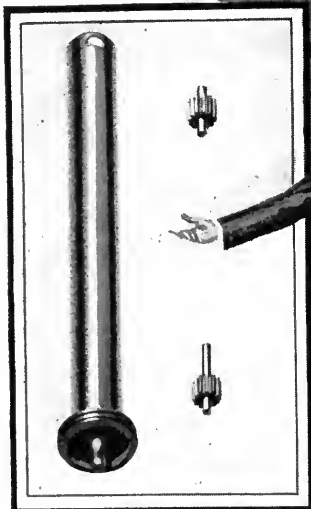
## RESULTS OF THE CLEVELAND ELECTION

The Cleveland councilmanic election, which took place on November 6, resulted in the choice of 23 men and 2 women. Politically, this new City Council of 25 members comprises 12 Republicans, 3 Independent Republicans, 6 Democrats and 4 independents. It is said by competent local observers to be the ablest and most representative City Council that Cleveland has elected for at least 16 to 20 years. Of the four candidates elected wholly by first-choice votes, two are municipal experts of national reputation—A. R. Hatton and Peter Witt.

A statement issued by the Proportional Representation League classifies the successful candidates by occupations, as follows: 8 attorneys, 3 real estate men, and 1 each of the following: builder, seedsman, decorator, traction consultant, executive in social work (legally trained), W. C. T. U. county president, retired mill superintendent, furniture store manager, court bailiff, cigar manufacturer, grocer, undertaker, truckman, and professor of political science.

The Proportional Representation League's statement also shows that of the 105,846 voters who cast valid ballots for the Council under the proportional system this year, 61,301, or 58 per cent, saw elected their very first choice among the candidates running in their district; in addition to which 24,338, or 16 per cent, cast other than first-choice votes for candidates who were elected. In other words, only 26 per cent of the voters who cast valid ballots were not successful in electing a councilman of their choice, whereas in the election under the old system in 1921, 60 per cent of the total vote was not effective in electing councilmen.

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Contrast this with the gear trains, worms, splined shafts, jaw clutches, slides, guides, shafting under high torsion, lubricating devices, and similar constructions unavoidable where the necessarily large reduction is made through mechanical instead of hydraulic means.

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DETROIT, MICH.

# The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

## Limitation on the Power of Governors to Remove Mayors

The extent of power vested in the governor of Ohio to remove the mayor of a city was considered by the Supreme Court of that state in the recent case of *State vs. Donahey*, 140 N.E. Reporter, 609. In the course of its opinion, the Court said:

"In respect to the finding that the relator was guilty of misconduct in office in the selection of his chief of police and other police officers, it is sufficient to say that we know of no provision of law which authorizes the mayor to appoint his chief of police and other law enforcement officers by and with the consent of the governor.

"The matter of the appointment of police officers is purely a matter of local self-government, and while the mayor of a city may be called to account for the conduct of such officers, of which he has knowledge, he may not be removed from office by reason of the past history or general character of such appointees.

"Touching the question of misconduct of the relator during a former term, it is not the purpose of the provision of the constitution requiring the Legislature to enact laws providing for the prompt removal from office of officers guilty of misconduct, or of the Legislature in the enactment of section 6212-34, General Code, in pursuance thereof, or in the enactment of section 4268, General Code, prior to the adoption of the constitutional provision, to vest in the governor of the state, or any other tribunal, a veto power upon the right of the electors of the municipality to elect their own city officials, the right conferred being to remove for cause, which cause must arise during the term, and subsequent to the exercise of the power to elect vested in the electors of a municipality."

## Validity of Provision for Paying Municipal Improvement Contractors in Bonds

Where there is no provision in a city charter requiring the municipal authorities to sell bonds to the highest bidder after a proper and legal notice, the authorities, when authorized to issue and sell bonds to pay for a public improvement, may, the contractor consenting, deliver the bonds at par in payment of the contract price, in

lieu of raising money upon them by loan and then paying that money in discharge of the contract obligations.

A provision in a notice to contractors that a city reserves the option to make payment in warrants or city bonds is unenforceable, except with the consent of the contractor; and, if such provision prevents competition to such an extent that it increases the cost of the work, the city should be enjoined from entering into the contract. (*Nebraska Supreme Court, Ledwith vs. City of Lincoln*, 193 Northwestern Reporter, 763.)

## Ordinance Forbidding Parking of Automobiles in Front of Railway Station Without Consent of Superintendent of Station—Held Void

An ordinance of the city of Cincinnati forbidding parking of automobiles in front of a railway station without consent of the superintendent of the station, is void, according to the decision of the Ohio Supreme Court in the case of *City of Cincinnati vs. Cook*, 140 Northeastern Reporter, 655. The Court said:

"That this ordinance works a delegation of power, which may, and under the facts disclosed by this record, did, result in lack of uniformity and in discrimination, is clear and unmistakable. It confers upon some person to be designated by the owner of a specified premises the power to select persons who may use and enjoy the street in that location, and to exclude others therefrom, so that he may, for a consideration or otherwise, let that space for the purpose of a taxicab stand to certain favored individuals or companies, and, in order to make it more valuable, exclude all others from that portion of the street.

"The city has ample power to control the use of the streets, and to regulate travel over the same, as well as to establish stands for omnibuses and taxicabs; but it is elementary that it cannot delegate such powers to an individual. There is no such question as taking from the owner of property the right of ingress and egress to his own premises involved here, but rather the question of conferring upon him a

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proprietary interest in the street, which he may transfer to whomsoever he may choose, and such right be enforced by the provisions of this ordinance. In effect this ordinance is no different than if the owner of the premises in question had been requested by council in advance of the enactment of the ordinance, placing therein the name or names of the person or persons exempted from the operation of its provisions, and prohibiting the standing of vehicles of any other person or company at that place."

#### **Duty of City to Afford Police Protection to Street Railways During Strike**

Enjoining the authorities of Schenectady from interfering with the operation of plaintiff's street car system during a strike, although attempt of the authorities to prevent running of the street cars was attempted to be justified by them as a measure to preserve law and order, the New York Supreme Court for Schenectady County said in the case of Schenectady Railway Co. vs. Whitmyer, 199 New York Supplement, 827:

"It is the duty of the police and the department of public safety to preserve order and protect the property of the citizens, individual and corporate. It is their duty to protect the railway company in running its cars, just as it is their duty to protect the people of the city in their rights to drive upon the streets and to walk peacefully upon the sidewalks. If any one attempts to interfere with the railway company in operating its cars, the police authorities must invoke the strong arm of the law to suppress such interference, just as they would if the rights of citizens to walk or drive lawfully upon the streets were being interfered with."

#### **City Held Not Liable for Accident Caused by Traffic Marker in Street**

A city is not liable for injury to a traveler in a street, resulting from collision between him, while riding in an automobile, and the projecting arm of a guide-post, on a theory of maintaining an improper obstruction in the street, held the Texas Court of Civil Appeals in the late case of Clark vs. City of Athens, 253 Southwestern Reporter, 574. The Court said:

"This guide-post or traffic marker had been placed when it was for the very purpose of regulating and directing traffic upon the public street and as a means of precaution and safety to the public in the ordinary and proper use of the street; and there was no evidence, as we have stated, showing the width of the streets at that point in question, nor was there any tending to show that there was not ample accommodation of the ordinary traffic upon the street. This being so, we are of the opinion

that the issue of negligence tendered by the special issue was not raised. Municipalities must, of necessity, be permitted reasonable latitude in the exercise of their police powers, one of which is the power to prescribe and enforce such rules and means touching the control and regulation of traffic upon their public streets as in the judgment of the municipal authorities are reasonable, calculated to advance and protect the interests and welfare of the public in the proper use of the streets. . . .

"It is true that municipalities are required to use ordinary care in the construction and maintenance of their public streets, to the end that the public in making ordinary use of the streets may not be exposed to dangers that the municipality may obviate by the use of such care, but they are not required to use any higher degree of care, nor to anticipate or foresee dangers that are not threatened to those making proper and ordinary use of the streets."

#### **City Permitting Wooden Awnings Over Sidewalks Must Supervise Them to Avoid Accidents to Pedestrians**

Affirming judgment in favor of plaintiff on account of injury sustained on a public sidewalk through collapse of a wooden awning when a support was pulled out by a horse hitched to it, the Florida Supreme Court said in the case of Hawes vs. City of Tallahassee, 87 Southern Reporter, 765:

"The defendant's duty was to take due care that the awning and the posts supporting it were so constructed and maintained that in their ordinary, usual, or customary uses they would not injure pedestrians properly passing along the sidewalk. The defendant's liability in damages covers injuries caused in the ordinary, usual, or customary use of the posts supporting the awnings, where such injuries reasonably may have been contemplated as a proximate result of negligence in the erection and maintenance of the awning and posts on or over the sidewalk, whether such result was actually contemplated or not."

#### **City May Not Maintain a Sewage Disposal Plant Constituting a Nuisance**

From the opinion of the Texas Court of Civil Appeals in the case of City of Pittsburg vs. Smith, 230 Southwestern Reporter, 1113, we quote:

"Can a municipal corporation be enjoined, as here, from maintaining and operating a sewage disposal plant or tank too small to accommodate the number of water-closets connected with it, as pleaded by the plaintiff? We think the question must be answered in the affirmative. . . . In operating a sewer the city exercised a corporate power, as distinguished from a governmental function. Therefore the fact that the public uses the sewer is not legally sufficient to exempt the city from restraint against committing a nuisance in the manner and mode of operation of the sewer."

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# Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York (233 Broadway), and from other sources  
For further information, Mr. Williams may be addressed in care of  
THE AMERICAN CITY MAGAZINE, 443 Fourth Avenue, New York

## Zoning Summary of Department of Commerce, Washington, D. C.

ON November 3, the Department of Commerce, Division of Building and Housing, at Washington, D. C., issued the most complete list of zoning enabling acts and ordinances which has appeared. According to this document, zoning ordinances have been adopted by 183 municipalities throughout the United States. The total population of these municipalities is in the neighborhood of 22,000,000. This shows an increase of 100 per cent over the figures for September, 1921. We shall in future use the list of the Department of Commerce as our point of departure, giving in these columns all laws and ordinances which subsequently appear. Copies of this list may be obtained from the Department at Washington on application.

The reader should note the following ordinances given heretofore in these columns, which do not appear in the list of the Department of Commerce.

Monrovia, Calif.—Ordinance, Sept., 1923

Richmond, Calif.—Ordinance, No. 531, July 31, 1923

Venice, Calif.—Ordinance July, 1923

West Park, Ohio.—Ordinance, Dec. 1, 1922

## Recent Zoning Constitutional Provision

Louisiana.—1921, Art. 14, Sec. 29

## New Zoning Ordinances Not Previously Listed

Lake Forest, Ill.—Ordinance, Nov. 5, 1923

Wheaton, Ill.—September, 1923

Webster Groves, Mo.—Ordinance, Nov. 5, 1923

Tarrytown, N. Y.—Ordinance, October, 1923

Madison, Ohio.—Ordinance, Oct. 23, 1923

## Recent Zoning Decisions

Louisiana.—State v. City of New Orleans, 97 Southern Reporter 440, 445, 446; Liberty Oil Co. v. City of New Orleans, 97 Southern Reporter 446 (six cases).

Act No. 27 of 1918, authorizing municipal authorities to define and regulate the kind, style and manner of construction of buildings which may be erected on designated streets, and to permit or prohibit the establishment and operation of various businesses and trades within designated limits, relates only to the one subject of city planning and zoning, and does not violate the Constitution 1913, Art. 31; for an act may relate to different branches of the same subject.

A municipal ordinance forbidding business establishments in designated residence streets, does not necessarily rest on esthetic considerations, but may be sustained on considerations of public health, safety, comfort or general welfare; and if these considerations could have justified the ordinance, the Court must assume that they did justify it, and cannot take issue with the City Council.

Maryland.—Rutherford v. Mayor, &c., of Baltimore, the Board of Zoning Appeals, etc., Baltimore City Court, October 24, 1923, reported in the *Daily Record* of Thursday, October 25, 1923.

The Board of Zoning Appeals as representing the public is a necessary party to each appeal from the decision of the Board. All persons who were present or represented at the hearing before the Board, in whose favor the order of the Board appealed from was made, should also be made parties. All other persons than the appellants, however interested in the subject matter of the appeal, will be adequately represented by the Board of Zoning Appeals; but any such person, in a proper showing to the court, may in its discretion be made a party to the appeal.

New York.—Matter of Irenbarth, Appellate Division, Supreme Court, Second Department, reported in *New York Law Journal*, October 20, 1923, page 248. A given district was zoned as residential, and the provision upheld as reasonable by the Board of Appeals. Held by the Court, reviewing the facts, that the provision was unreasonable, and the decision of the Board of Appeals reversed. The fact that private covenants required the construction of residential structures, did not necessarily make a similar zoning provision proper.

Matter of Palmer v. Munn, Supreme Court, Appellate Division, First Department, reported in *New York Law Journal*, November 3, 1923, page 426. Our readers will remember that in this case the validity of an amendment to the New York City zoning regulation, changing the height regulation for Fifth Avenue, and side streets, between 60th and 96th Streets, in New York City, is involved. The resolution provides that if objection is made by 20 per cent or more of the frontage proposed to be altered, the amendment must receive the unanimous vote of the Board of Estimate. Three votes were cast against the amendment. The city claimed that the amendment, as worded, includes a 100-foot strip of Central Park to the west of Fifth Avenue; and that therefore the owners of 20 per cent of the frontage in-

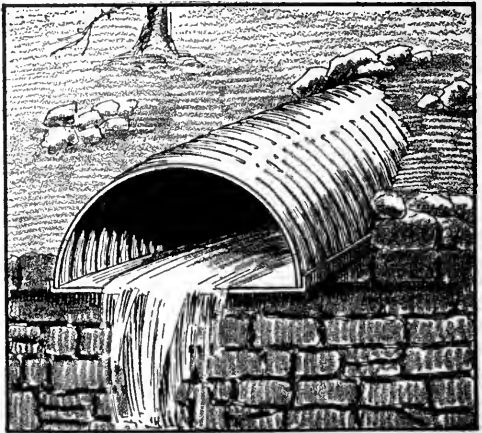
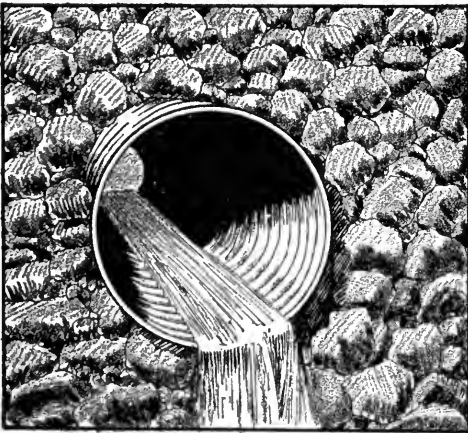


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volved did not vote against it. On appeal the Court held that the strip of park land was not described in the amendment as worded, and that therefore there was a 20 per cent vote against the amendment.

*Wisconsin.*—State ex rel. Klefisch v. Wis-

consin Telephone Co., et al, Supreme Court, November, 1923. Chapter 424 of the laws of 1923, being Section 4444g of the Statutes, limiting the height of buildings in cities, is declared to be a valid exercise of the public power.

## The Municipal Bond Situation

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

**F**OLLOWING the publication of Secretary Mellon's tax-reduction proposals, an element of confusion has characterized the municipal bond market. Large investors who have been buying tax-exempt bonds naturally looked upon Mr. Mellon's suggestion that surtaxes be lowered as a bearish argument on tax-free securities and, as country-wide sentiment has piled up behind the Mellon tax program, the tendency has been for the tax-exempt bond buyer to look for lower quotations on municipal bond offerings.

Careful analysis of the situation, however, suggests that municipal and state bonds have already discounted any tax reduction that is likely to receive the consideration of Congress this year. At the price level established in recent weeks, such bonds are selling on a basis so close to the highest-grade taxable bonds that the difference does not even reflect the superior security of the state or large city obligation.

Municipal bonds of first grade have always sold on a little higher price level than the best railroad or other taxable bonds—regardless of changing tax-exemption privileges. To-day, their market value apparently ignores tax exemption, the future value of which is now in question. The result is that institutions—savings banks, insurance companies, etc.—are coming back into the market and, together with reduced but important private investor buying,

are providing a satisfactory market for the \$75,000,000 to \$100,000,000 of new issues being floated monthly.

Professional dealers in municipals are virtually agreed that, at current prices, the financing of municipalities during the winter can be arranged without difficulty.

State bond issues continue to come on the market in large amounts, the total in November being \$26,000,000. California sold \$6,000,000 4¼'s and 4¾'s on a 4.46 per cent basis; Missouri, \$5,000,000 4½'s at a net rate of 4.59 per cent; and North Carolina, \$15,649,500 serial and forty-year 4½'s and 4¾'s at an average net rate of 4.69 per cent. The next big offering of state bonds is expected to be a New Jersey issue, which may be announced for sale about December 15.

### IMPORTANT STATE AND MUNICIPAL BONDS SOLD DURING NOVEMBER

Amount	Borrower	Maturity	Rate (%)	Net Yield (%)
\$6,000,000	California	1956-8 & 1960-2	4¼ & 4¾	4.46
5,000,000	Missouri	1928-32	4½	4.59
3,025,000	Dallas, Texas	1924-63	4½	4.64
10,649,500	North Carolina	1963	4½ & 4¾	4.69
5,000,000	North Carolina	1933-52	4½ & 4¾	4.69
5,000,000	Los Angeles, Calif.	1924-63	4¾	4.74
1,000,000	Los Angeles Co., Calif.	1928-47	5	4.74
1,742,000	Pasadena, Calif.	1924-63	4¾ & 5	4.87
2,863,000	Pinellas Co., Fla.	1929-55	5½	5.65

## Home Rule for the Cities of New York State

**A**T the November election the voters of New York State approved a constitutional amendment designed to give cities home rule in matters which concern their local government, property and affairs, and at the same time to relieve the Legislature of a mass of local legislation which it cannot act on intelligently. The amendment provides that the Legislature shall not pass any law affecting cities which in terms or effect shall be local, except in cases of emergency, when a message from the Governor stating that an emergency exists, and the approval of two-thirds of each house of the Legislature, will make it possible for the Legislature to act. The Legislature is required at its next session to provide by a gen-

eral empowering act for the machinery under which cities may enact their local laws and carry on their local administration. A Home Rule Commission created by the last Legislature will prepare the necessary general laws for submission to the Legislature of 1924.

The favorable vote on this important amendment to the organic law of New York State is due in no small degree to the hearty support of the amendment by several of the leading organizations of the state, including among others the State Conference of Mayors and Other City Officials, the New York State Association, the New York League of Women Voters, the Citizens Union of the City of New York, and the City Club of New York.

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# Municipal and Civic Publications

Prices do not include postage unless so stated

**Site Planning in Practice.**—By F. Longstreth Thompson, Late Assistant Architect to the Housing Department, Ministry of Health, England. With a Foreword by Raymond Unwin, Chief Architect, Housing Department, Ministry of Health. Oxford University Press, American Branch, New York. 1923. XXVIII + 257 pp. Many illustrations. \$5.35.

While this volume is confined to a study of the housing possibilities under the new British housing limits, it is of great importance to town planners and municipalities in this country. For them it is most useful in analyzing and adequately illustrating economical, hygienic and attractive ways of planning housing layouts and making them accessible. The methods of development discussed in this book are based upon a building density of twelve houses to the acre, which gives a freedom in road location and design that has made it possible to adapt the layout to the contour of the site. Both beauty and economy are thus served.

**Community Civics.**—By Grace A. Turkington. Ginn and Company, Boston. 1923. VIII + 560 + XXIII pp. Many illustrations. \$1.40 postpaid.

"Life, liberty and the pursuit of happiness in the United States." A text-book in American living, not a mere compilation of facts. The author's purpose is to teach pupils to analyze life in our country so as to understand its fundamental activities, how they develop and change during the years, and how government must constantly be adjusted to meet them. Such a study quickens the pupils' sense of responsibility for the making of a government that shall best meet the needs of the people in their homes and in their work. The text, the problems and exercises given are inspiring to individual initiative in raising the people's ideals and molding government to express them. A unique and valuable book.

**Citizenship for New Americans.**—By William E. Scott, former Principal, South Saint Paul High School. Scott-Mitchell Publishing Co., Saint Paul, Minn. 1923. XII + 206 pp. Maps and photographs. \$1.50 postpaid.

A handbook with a deep purpose—not only to give to would-be citizens all the necessary information about the United States, but to make clear the fundamental principles of our government in such a way that they will be used for good citizenship. The history and progress of our country, an outline of local and state governments, the organization of the national government, the amendments to the Constitution, our political parties, commercial law, immigration and naturalization are presented simply and directly in a way to appeal to the intelligence of readers. There is a chapter on Flag Etiquette. The manner of presentation is—with marginal analysis, main ideas in italics, and brief questions at the end of chapters—clear and definite and of aid to the memory.

**State and Municipal Government in the United States.**—By Everett Kimball, Ph.D., Professor of Government, Smith College. Ginn and Company, Boston. 1922. X + 581 pp. \$3.00 postpaid.

A college text-book in which the author has set forth, as far as possible, the normal institution, method, or practice, and also the sharply marked divergences. He has brought together material from various sources and coordinated and condensed it, with comment, to serve the needs of students concisely. Part V, on Municipal Government, covers 206 pages and makes clear that while the state controls the liberty and activities of the citizens, the municipality provides the means and methods of enjoying these liberties and activities and should have adequate administrative machinery for the task.

**Zoning Ordinance of the City of Seattle.**—Effective July 27, 1923. 14 quarto pp. of text and 39 pp. of maps. Harland Bartholomew, of St. Louis, Mo., was special consultant for this work, which was carried out by the Zoning Commission during two years. (Apply to E. L. Gaines, Engineer and Executive Secretary of the Zoning Commission.)

**Domestic Sanitation and House Drainage.**—By Henry C. Adams, Past President, Institution of Municipal Engineers, England. Oxford University Press, American Branch, New York. 1923. XV + 227 pp. Illustrated. \$3.50.

A volume dealing distinctly with the subject of sanitary science as applied to individual houses, covering in detail by chapters the subjects of building sites, sanitary building construction, house drains, drainage materials and fittings, construction of drains, soil and waste pipe, ventilation of drains, water-closets and slop-sinks, baths, lavatories and sinks, institution and school sanitation, cast iron drainage, stables and cowsheds, drain flushing and cleaning, drain testing, planning drainage systems, conservancy systems, house refuse, drainage law (English), water services, lighting and illumination, warning, ventilation and sanitary surveys.

**Towns and Town-Planning, Ancient and Modern.**—By T. Harold Hughes, Associate of the Royal Institute of British Architects, and E. A. G. Lamborn, Hon. M. A. Oxon. Oxford University Press, American Branch, New York. 1923. XII + 156 pp. Many illustrations. \$5.00.

A survey of town planning from the earliest known example, in Egypt, to recent expositions of the principles and ideals of the art, without, however, taking up the progress made in American zoning legislation or the difficulties encountered by city planners in this country in dealing with the problems created by our tall buildings. This book gives a background, interesting and valuable, for all who are concerned in the study and practice of town planning.

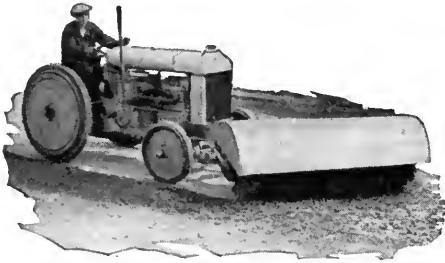
**Regional Survey of West Middlesex, England.**—By Thomas Adams and Longstreth Thompson, Town Planning Consultants. December, 1922. 62 pp. Maps. Apply to Ernest S. W. Hart, Hon. Secretary, West Middlesex Joint Town Planning Committee, Guildhall, Westminster, S. W. 1, London, England. 5 shillings.

This is the preliminary report upon the survey of the West Middlesex region, which is a section of the larger region of Greater London, but is of sufficient size and has sufficiently definite physical characteristics and boundaries to be suitable for a regional planning scheme. Agriculture and manufacture are both carried on in this composite rural and urban section, and opportunity is afforded of securing the fundamental requirement of healthy development through a proper plan. The plan will cover transport routes, zoning proposals, building lines and heights of buildings, open spaces, civic centers, shopping centers, drainage, etc. The existing conditions out of which such a plan must be developed are here presented.

**A Text-Book in Citizenship.**—By R. O. Hughes, Peabody High School, Pittsburgh. Allyn and Bacon, New York. 1923. XXVI + 748 pp. Many illustrations. \$1.60.

Citizenship and social living are the main topics of this important study of civics, and to them is related all the discussion of the various elements of the subject. The three great divisions of the material are: I, Living Together; II, Earning a Living, and III, Executing the People's Will. Under I we have chapters on Our Associations, The Land We Live In, The Home, The School, The Church, The Community, The Nation, Intelligence, Health, Security, Beauty, Convenience, Comfort, and Cooperation. Under Part II, the various phases of industry, business, banking and labor are discussed. Part III presents the fundamental principles of government, national, state and community; how government is organized, administered and maintained, and the rights and duties of the individual. Questions for thought are inserted in the text to which they apply.

**Sanitation.**—By B. Evan Parry, M.R.A.I.O., Supervising Architect. A study of safe water-supplies for isolated houses and institutions where a municipal system is not available. Issued in Unabridged Edition and in Homesteaders' Edition, by the Department of Health, Canada, 46 pp. and 34 pp. respectively. Illustrated. Free. (Apply to the Deputy Minister, Department of Health, Ottawa, Ont.)



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**Social Problems and Social Policy.**—Edited with an Introduction by James Ford, Ph.D., Associate Professor of Social Ethics in Harvard University. Ginn and Company, Boston. 1923. XIII + 1,027 pp. \$4.00 postpaid.

A collection of many articles setting forth the principles underlying the treatment and prevention of poverty, defectiveness, and criminality, grouped in five parts under the headings of Social Purpose, Social Method, The Problem of Defectiveness, The Problem of Poverty, The Problem of Criminality, with several subdivisions under each head. Designed for use in classrooms to develop the power of analysis and mental independence in the discussion of the principles and arguments presented, and for executives and all others interested in the field of social policy.

**Principles of Real Estate Practice.**—By Ernest McKinley Fisher, M.A., Assistant Executive Secretary of the National Association of Real Estate Boards. With a Preface by Richard T. Ely. The Macmillan Company, New York. 1923. XVI + 309 pp. \$3.50 postpaid.

This is Volume I in the Standard Course in Real Estate outlined by the Joint Commission representing the National Association of Real Estate Boards, the United Y. M. C. A. Schools, and the Institute for Research in Land Economics and Public Utilities. It is an elementary work in the opening up of the whole field of land problems, and is designed to help those who contemplate entering the field and those who are already experienced in this business that is rapidly becoming a profession. A summary and a group of questions accompany each chapter. The sections on Subdividing and City Planning and Taxation of Real Estate will be of especial interest to readers of THE AMERICAN CITY.

**Intelligence Tests in High Schools.**—Three articles in "Bulletin of High Points in the Work of the High Schools of New York City," October, 1923: Psychological Examinations of High School Students, by Edith Carothers, Psychologist, Washington Irving High School; Use Made of Psychological Tests at the Washington Irving High School, September, 1922-June, 1923, by Edith M. Tuttle, Washington Irving High School; The Value of Intelligence Tests, by Meyer E. Zimman, Girls' Commercial High School. 15 pp. in all. (Apply to the Board of Education, Room 821, 500 Park Avenue, New York, N. Y.)

**The Adolescent Offender.**—A study of the age limit of the Children's Court, made by the Committee on Criminal Courts of the Charity Organization Society of the City of New York, January 1, 1923. 85 pp. Showing the actual treatment accorded youths between the ages of 16 and 21 in all the Adult Criminal Courts of New York City, for the purpose of finding out what there was about the handling of such cases that was detrimental to the welfare of the youths thus affected, and consequently of the community itself, and how such defects could be remedied if such cases were treated in the Children's Court. Including also the case histories of the youths tried. The study was made under the direction of Lawrence Veiller and Mary E. Paddon, and the report was written by Mr. Veiller. (Apply to Mr. Veiller, Secretary of the Committee on Criminal Courts of the Charity Organization Society, 105 East 22nd Street, New York, N. Y.)

**Community Councils in New York City.**—Statement of history, present basis of organization, plan and program work, and list of active councils. 10 pp. (Apply to Jabez E. Dunningham, Executive Secretary, The Community Councils of the City of New York, Room 2240, Municipal Building, New York, N. Y.)

**The Sanitary District of Chicago.**—Three pamphlets: (1) A statement of progress to 1923, 24 pp., illustrated; Engineering Facts, May, 1923, 32 pp., map and chart; Influence of the Sanitary District on Chicago's Health, by Willis O. Nance, M.D., Trustee of the Sanitary District of Chicago. July, 1923. 8 pp. Edward J. Kelly is Chief Engineer of the District. (Apply to the Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

**Our Junior High School Problem.**—Address delivered by William L. Ettinger, Superintendent of Schools, New York City, before Associate and District Superintendents and Principals of Junior and Senior High Schools, October 10, 1923. 50 pp. A discussion of the organization of junior high schools as an important movement in the direction of a more democratic and flexible type of schooling. (Apply to the Board of Education, Park Avenue and 59th Street, New York, N. Y.)

**The Kiwanis Magazine, Chamber of Commerce Edition.**—Official publication of the Kiwanis Club International, 164 West Jackson Boulevard, Chicago, Ill. 52 pp. \$1.50 per year.

This special number features the following articles: "Teamwork," by Julius H. Barnes, President, the United States Chamber of Commerce; "Our Attitude Towards the Chamber of Commerce," by John H. Moss, Trustee, the Kiwanis Club International; "If You Can't Boom, Beware of the Boomerang," by Verner W. Main, First President of the Kiwanis Club of Battle Creek; "Let's Be Definite," by Ray W. Davis, and "The Chamber of Commerce Is a Kiwanis Opportunity," by Harold S. Bittenheim, Editor of THE AMERICAN CITY.

**Survey of the School System, Stamford, Conn.**—Report made by the Institute of Educational Research, Division of Field Studies, Teachers College, Columbia University, covering the school year 1922-1923. N. L. Engelhardt, Assistant Director, was in charge of the survey, with many collaborators and assistants. XIII + 237 pp. Views, charts, diagrams, tables. An elaborate study, some of the divisions of which are: School Census and Attendance; Classification and Progress of Children; Extra-Curricular Activities in the Elementary Schools; The Teaching Staff; Health Supervision; Industrial and Fine Arts and Vocational Education; Household Arts Education; American Classes for the Foreign Born; The Present School Plant; The School Building Program; School Financing and School Costs. (Apply to George D. Strayer, Director, The Institute of Educational Research, Teachers College, Columbia University, New York, N. Y.)

**National Conference of Social Work.**—Proceedings of the Fiftieth Anniversary Session, held in Washington, D. C., May 16-23, 1923. VI + 566 pp. Many papers by authorities in this field, presented under the main divisions of Health, Industry, Law and Government, the Church, the Home, the School, Public Opinion. Giving also the business transactions of the Conference. Price, \$3.00. (Apply to the publishers, The University of Chicago Press, Chicago, Ill.)

**Weights and Measures.**—Suggestions to the Housewife. Compiled by W. F. Cluett, Chief Deputy Inspector of Weights and Measures, Chicago, Ill. 16 pp. Containing suggestions for the protection of purchasers from the acts of unprincipled tradesmen and emphasizing the Department's offer of cooperation. Including tables of weights and measures and the legal unit weights of commodities in Illinois. (Apply to Carmen Vacco, Inspector of Weights and Measures, Chicago, Ill.)

**The National Community Magazine.**—Volume I, Number 1, September, 1923. A publication, national in scope, devoted to local community problems and development. 40 pp. Illustrated. This first number contains special articles on the following subjects: Brimfield's Remarkable Community House; Why Do Boys and Girls Leave Home?; The Awakening at Jacksonville; Florida's Practical Publicity Law; Where Should I Buy Goods?; Loyalty Week in Mobile; The Menace of the City; and "Hans Garbus," a discussion of the duty of "giving your patronage where you get your living." (Apply to Ben R. Vardaman, Editor and Publisher, 127 North Dearborn Street, Chicago, Ill.)

**Pageant Street Lighting.**—By Samuel G. Hibben, Manager, Illumination Bureau, Westinghouse Lamp Company, New York, N. Y. A paper presented before the annual convention of the Illuminating Engineering Society, Lake George, N. Y., September, 1923. 10 pp. Illustrated. Describing the lighting of streets in Washington, D. C. by spray-colored or diffusing bulb Mazda lamps for the National Shriners' convention in June, 1923. (Apply to the Illuminating Engineering Society, 29 West 39th Street, New York City.)

**Municipal Budget Analyses.**—Comparative analysis of budgets for 1923 of cities having a population between 15,000 and 20,000. Data gathered by the New York State Bureau of Municipal Information. Report No. 23, August 2, 1923. 9 pp. of mimeographed tables. The cities dealt with are Corning, Dunkirk, Glens Falls, Hornell, Ithaca, Lackawanna, Middletown, North Tonawanda, and Watervliet, N. Y. (Apply to the Bureau, Albany, N. Y.)

**Wayne County, Mich.**—Report of Board of County Park Trustees from December 1, 1919, to September 1, 1923. (Apply to Edward N. Hines, Chairman and Superintendent, Detroit, Mich.)

# Open to Traffic in 10 Days!

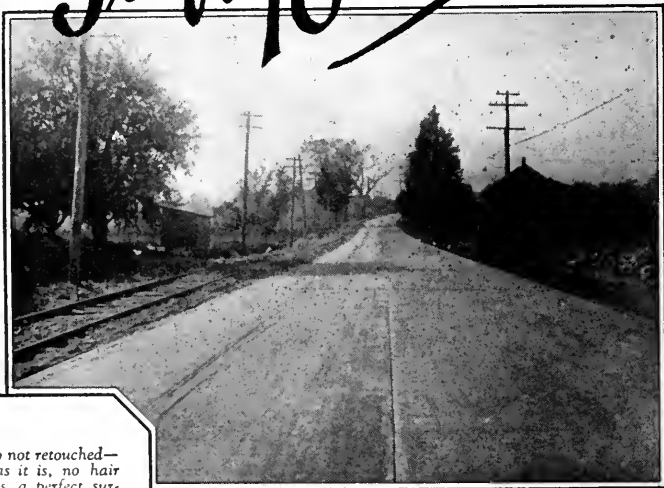


Photo not retouched—just as it is, no hair cracks, a perfect surface cured by Solvay Calcium Chloride.

**T**HE concrete on the road pictured above was placed October 5th and 6th and the road was opened to traffic on October 16th!

State and County Engineers, wherever Calcium Chloride curing has been used, are unanimous in their commendation. Results are certain with Solvay because it automatically proceeds with the curing. There is no worry concerning daily sprinkling, no expense for inspectors. Once Solvay is applied the curing goes ahead and you quickly have the road in use, a strong perfectly cured concrete highway.

*In addition to curing concrete*, Calcium Chloride, when mixed with concrete gauging water, provides four very desirable conditions:

1. Accelerates the initial and final set and increases the early tensile strength.
2. Gives greater plasticity and workability.
3. Increases density—waterproofs.
4. Increases freezing resistance—freezeproof.

It is for use in all concrete work, and for use in mortar, in setting brick. Its efficiency is not impaired by the weather. The action of Solvay enables brick work and concreting to proceed at exceptionally low temperatures, as it lowers the freezing point of water, at the same time hastening the action.

## For CONCRETE CURING

*use* **SOLVAY**  
*Free Running*  
**Calcium Chloride**

**ACCELERATES, HARDENS, FREEZEPROOFS—WATERPROOFS CONCRETE**

Shipped in 375 lb. non-returnable drums or easy-to-handle 100 lb. moisture-proof bags from 50 convenient distribution points. Our new booklet "Concrete—Summer and Winter" sent free on request.

Write

**SEMET-SOLVAY COMPANY, Dept. J., Syracuse, N. Y.**



**Stratford-upon-Avon: Report on Future Development.**—Prepared, at the instance of the Stratford-upon-Avon Preservation Committee, by Patrick Abercrombie and Lascelles Abercrombie. Published, by permission of the Stratford-upon-Avon Corporation, the owners of the copyright, by Hodder & Stoughton, Ltd., London. 1923. XI + 35 quarto pp. Many illustrations. 7s. 6d.

Stratford-upon-Avon represents "an idea loved by half the world," and the town must therefore hold itself "in trust for English-speaking culture." The problem of its development includes the possibility of factory building in the not-immediate future. This report endeavors to reconcile a regard for local interests with historical and esthetic conservatism. A book of great beauty and interest.

**Tourist Camps.**—Their Sanitary Control and Operation. By George W. Simons, Jr., Chief Sanitary Engineer, Florida State Board of Health. 1923. 13 quarto pp., including 3 pp. of blue-prints of designs. Setting forth the special experience of Florida in this matter, and principles which are of value to any city. (Apply to Raymond C. Turck, State Health Officer, Tallahassee, Florida.)

**Transportation of School Children, Montgomery County, Alabama.**—Issued jointly by the Montgomery County Board of Education and the Farm Section of the Chamber of Commerce. 16 quarto pp. Illustrated. Thirty-four trucks were in operation during the season of 1922-23. A most interesting record, prepared by T. L. Head, Assistant County Superintendent of Education, to whom apply. (Montgomery, Ala.)

**The Attitude of High School Students Toward Motion Pictures.**—By Clarence Arthur Perry, Associate Director, Recreation Department, Russell Sage Foundation. Published by the National Board of Review of Motion Pictures, 70 Fifth Avenue, New York, N. Y. 55 pp. Charts and tables. Based upon the returns to a questionnaire circulated by the National Committee for Better Films. Showing the tastes and habits, as regards motion pictures, of 37,000 high school students from all sections of the United States. Cloth, 75 cents; paper, 40 cents. (Apply to publishers.)

**The American Voter as a Lawmaker.**—By Judson King, Director of the National Popular Government League. An examination of the initiative and referendum elections of 1922. What 7,000,000 voters did with 135 measures on the ballots in 16 states. 18 pp. 15 cents postpaid. (Apply to the League, 637 Munsey Building, Washington, D. C.)

**Lighting for Traffic Control.**—Information compiled by L. C. Porter and G. F. Prideaux, Commercial Engineering Department, Edison Lamp Works of General Electric Company, Harrison, N. J. Covering means for traffic control on land, on the water, and in the air. July, 1923. 32 pp. Illustrated. Index 90; Bulletin L. D. 147. Showing many different devices and their uses, and including a bibliography on the subject. (Apply to the Edison Lamp Works, as above.)

**A Syllabus of Municipal Administration.**—By Lent D. Upson, Ph.D., Director, Detroit Bureau of Governmental

Research, and Professorial Lecturer on Municipal Administration, University of Michigan. 1923. 66 pp. For the course in Practice of Municipal Administration at the University of Michigan. Sketching what typical city activities are and how they are performed. Of value to citizens and municipal officials. \$1. (Apply to the Bureau of Government, University of Michigan, Ann Arbor, Mich.)

**Private and Public Employment Contrasted.**—An address before the Industrial Association, Employment Managers Section, by Clinton Rogers Woodruff. Reprinted for private circulation from "The American Journal of Sociology," September, 1923. 11 pp. Showing where private and public employment each excel and where both have been unsuccessful. (Apply to the author, 703 North American Building, Philadelphia, Pa.)

**Milwaukee's 84-Mile Parkway.**—The 15th Ward's section of the Parkway for the promotion, protection and convenience of residential areas, as promulgated by Milwaukee City and Milwaukee County, Wis. 16 pp. Illustrated. See page 579 in this issue. (Apply to C. B. Whitnall, Secretary, Milwaukee County Park Commission and Rural Planning Board, 407 Broadway, Milwaukee, Wis.)

**Municipal Meat Inspection.**—By C. V. Craster, M. D. The principles of abattoir and retail store supervision, with the requirements and procedure in Newark, N. J. 4 pp. Illustrated. In the September, 1923, Monthly Bulletin of the Newark Department of Health. (Apply to the Department.)

**Cambridge, Mass.**—Sixth Annual Report of the Planning Board, for 1922. Final Report on Zoning. (Apply to Frederick H. Burke, City Clerk.)

**Chicago, Ill.**—Twenty-sixth Annual Report of the Department of Gas and Electricity, for 1922. (Apply to John T. Miller, Commissioner of Gas and Electricity.)

**Detroit, Mich.**—Annual Report of the Department of Street Railways, for the fiscal year ended June 30, 1923. (Apply to William B. Mayo, General Manager of the Department.)

**East Cleveland, Ohio.**—Fifth Annual Report of the City under Commission-Manager Plan of Government, supplemented by the Annual Report of the Public Library, for 1922. (Apply to Charles A. Carran, City Manager.)

**Newton, Mass.**—Annual Report of the Street Commissioner for 1922. (Apply to George E. Stuart, Street Commissioner.)

**St. Paul, Minn.**—Annual Report of the Commissioner of Public Works for 1922. (Apply to William J. Peter, Commissioner of Public Works.)

**Wayne County, Mich.**—Seventeenth Annual Report of Board of County Road Commissioners, for year ending September 15, 1923. Leroy C. Smith is Engineer-Manager of the Board. (Apply to Edward N. Hines, Chairman of the Board, Detroit, Mich.)

## On the Calendar of Conventions

DECEMBER 5-7.—PHILADELPHIA, PA.

National Housing Association. Annual conference. Secretary, Lawrence Veiller, 105 East 22nd Street, New York, N. Y.

DECEMBER 6-7.—WASHINGTON, D. C.

National Civil Service Reform League. Annual meeting. Secretary, H. W. Marsh, 8 West 40th Street, New York, N. Y.

DECEMBER 13-14.—NEW YORK, N. Y.

National Industrial Conference Board. National Conference on Immigration. Managing Director, Magnus W. Alexander, 10 East 39th Street, New York, N. Y.

DECEMBER 26-28.—WASHINGTON, D. C.

National Community Center Association. Annual conference. Secretary, LeRoy E. Bowman, 503 Kent Hall, Columbia University, New York, N. Y.

JANUARY 13-19.—CHICAGO, ILL.

American Road Builders' Association. Annual convention. Secretary, Ethel A. Birchland, 37 West 39th Street, New York, N. Y.

JANUARY 15-17.—RICHMOND, VA.

League of Virginia Municipalities. Annual con-

vention. Secretary, Morton L. Wallerstein, 408 Travelers Building, Richmond, Va.

JANUARY 16-17.—GRAND ISLAND, NEBR.

League of Nebraska Municipalities. Annual meeting. Secretary, Theo. H. Berg, City Hall, Lincoln, Nebr.

JANUARY 16-18.—NEW YORK, N. Y.

American Society of Civil Engineers. Annual meeting. Secretary, John H. Dunlap, 33 West 39th Street, New York, N. Y.

FEBRUARY 13-15.—ATLANTIC CITY, N. J.

New Jersey Mosquito Extermination Association. Annual meeting. Secretary, Thomas J. Headlee, New Brunswick, N. J.

FEBRUARY 24-28.—CHICAGO, ILL.

National Education Association. Department of Superintendence. Annual meeting. Secretary, Dr. S. D. Shankland, President, Andrews Institute for Girls, Willsoughby, Ohio.

FEBRUARY 27-29.—TORONTO, ONT.

Ontario Good Roads Association. Annual convention. Secretary, S. L. Squire, 98 Albany Avenue, Toronto, Ont.

# 30 years of service

30 years ago many streets were paved in this way:—first the sub-soil was graded, then a very thin layer of stone, cinders, or sand was spread from curb to curb; finally a brick surface, sand filled, or sometimes tar-filled was laid over this base.

These pavements, laid when Grover Cleveland was president, in many cases are not perfect today. The surface may be rough and need relaying—on a new base designed to meet present traffic needs.

The point is this—*no other paving material laid under those conditions could possibly be in service today.*

Only paving brick could stand such treatment and those brick have stood it thirty years and more virtually without attention through all that long period.

And, how are the brick? Invariably as good as the day they were laid except for slight cobbling on the upper edges where the filler wore away years ago.

NATIONAL PAVING BRICK  
MANUFACTURERS ASSOCIATION  
ENGINEERS BLDG. CLEVELAND, OHIO

**VITRIFIED**  
**Brick**  
**PAVEMENTS**  
**OUTLAST THE BONDS**

Albion Shale Brick Company  
Albion, Ill.

Alton Brick Company  
Alton, Ill.

Barr Clay Company  
Streator, Ill.

Binghamton Brick Company  
Binghamton, N. Y.

Cleveland Brick & Clay Company  
Cleveland, Ohio

Clydesdale Brick & Stone Co.  
Pittsburgh, Pa.

Coffeyville Vitrified Brick & Tile Co.  
Coffeyville, Kans.

Collinwood Shale Brick Company  
Cleveland, Ohio

Corry Brick & Tile Company  
Corry, Pa.

Francis Vitric Brick Company  
Boynton, Okla.

Georgia Vitrified Brick & Clay Co.  
Augusta, Ga.

Globe Brick Company  
East Liverpool, Ohio.

Hammond Fire Brick Company  
Fairmont, W. Va.

Hocking Valley Brick Company  
Columbus, Ohio.

Independence Paving Brick Co.  
Independence, Kans.

Mack Mfg. Company  
Wheeling, W. Va.

C. P. Mayer Brick Company  
Bridgeville, Pa.

Medal Paving Brick Company  
Cleveland, Ohio.

Metropolis Paving Brick Co.  
Pittsburg, Kansas.

Metropolitan Paving Brick Co.  
Canton, Ohio.

Mineral Wells Paving Brick Co.  
Mineral Wells, Texas.

Moberly Paving Brick Company  
Moberly, Mo.

Murphysboro Paving Brick Co.  
Murphysboro, Ill.

Patton Clay Mfg. Company  
Patton, Pa.

Peebles Paving Brick Company  
Portsmouth, Ohio.

Pittsburgh Paving Brick Company  
Pittsburgh, Kansas.

Purinton Paving Brick Company  
Galesburg, Ill.

Southern Clay Mfg. Company  
Chattanooga, Tenn.

Springfield Paving Brick Company  
Springfield, Ill.

Sterling Brick Company  
Olean, N. Y.

Streator Clay Mfg. Company  
Streator, Ill.

Thornton Fire Brick Company  
Clarksburg, W. Va.

Thurber Brick Company  
Ft. Worth, Texas.

Toronto Fire Clay Company  
Toronto, Ohio

Trinidad Brick & Tile Company  
Trinidad, Colo.

Veedersburg Paver Company  
Veedersburg, Ind.

Western Shale Products Company  
Fort Scott, Kans.

Westport Paving Brick Company  
Baltimore, Md.

## News and Illustrations

Items of Interest to City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

### A New Pumper That Smothers Fires

With the great increase in gasoline filling stations, bulk oil storage, dip tank operations and the general use of liquid inflammables in almost all of any city's industrial plants, the problem which the fire department faces in these extra-hazardous risks has become constantly more baffling. The Foamite-Childs Corporation, Utica, N. Y., has studied this municipal problem for many years and has now brought out the Foamite pumper, a motor unit capable of delivering 12,000 to 14,000 gallons of Firefoam under pressure sufficient to give a satisfactory and dependable range.

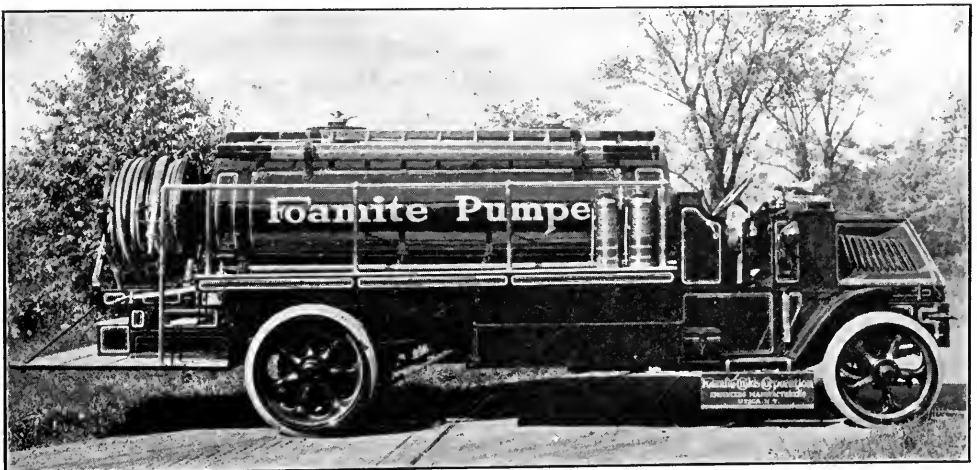
The chassis of this 1,400-gallon Foamite pumper is a Mack 7½-ton truck with chain drive and 180-inch wheel-base. The chemical solution tanks consist of two elliptical tanks with steel shell, with the rear tank lead-lined to resist the action of the acid. The pumping unit consists of a twin rotary pump, rated to throw 35 gallons of each solution, 560 to 700 gallons of Firefoam, per minute against a working pressure of 100 pounds. The unit delivers equal quantities of the two solutions simultaneously and is mounted beneath the forward tank. Special acid-resisting piping is employed between the pumping unit and the solution tanks, and is so arranged that the pump can draw the solutions out and throw them on a fire, can charge the tanks, or can pump water into the tanks to wash them out after a fire.

The truck carries 700 feet of 1½-inch 4-ply rubber chemical hose in 14 50-foot lengths. Of this hose, 500 feet is connected to the automatic hose reel in the form of a 250-foot twin line. The 200-foot balance is carried as extra hose in the hose basket. The Foamite combination nozzle set is a brass Siamese nozzle with two 1¼-inch female swivel inlets and one 2½-inch male outlet. The mixing tube is rubber-covered and fitted with 2½-inch expansion brass nozzle couplings. The nozzle is fitted with a shut-off.

This truck also carries one 24-foot extension ladder mounted on forged steel brackets on the solution tanks, a 12-foot pike pole and holder and four 2½-gallon Foamite extinguishers equipped with carrying straps, hose and shut-off nozzles, as well as two 1½-quart Fire-Gun extinguishers with brackets, and one complete chemical charge; one recharge is furnished for the solution tanks and for the Foamite extinguishers. The equipment also includes axe, crowbar, tool-box, lanterns and siren.

### Reducing Night Accidents

In many states, stripes are now painted on pavements to mark a definite distance ahead of a railroad crossing and also to indicate other traffic directions. The illumination of traffic signs and direction markers is an important question where night driving is heavy. A well-built lighting unit which can be mounted on a telephone, telegraph or street lighting pole, building or tower, where current is available,



THIS NEW PUMPER CAN THROW 14,000 GALLONS OF FIREFOAM AND QUICKLY CHECK STUBBORN FIRES IN INFLAMMABLE LIQUIDS

## **TO INCOMING AND PRESENT OFFICE HOLDERS:-**

Some of you are about to assume responsibilities the character of which is unknown to you as yet.

Others are proceeding with knowledge gained by experience.

New Problems will confront both of you.

The completion of fifteen years' active service in municipal accounting, auditing and engineering with a successful record prompts the offer to you to aid in the solution of your problems, such as

**Proper Accounting Methods;  
Periodical and Annual Audits;  
Special Examinations;  
Appraisal and Operation of Utilities;  
Special Reports for Rate Making Purposes;  
Appearance Before Utility Commissions.**

*Your enrolment as clients will be appreciated.*

*Respectfully,*

**UNIVERSAL AUDIT COMPANY**

**SINGER BUILDING  
NEW YORK  
Cortlandt 6857**



A SPOT-LIGHT FOR TRAFFIC SIGNS

has been placed on the market by the Essco Manufacturing Company, Peoria, Ill., under the name, "Mushroom Projecto-Light." Even though this light may be mounted some distance from the traffic direction sign or pavement marking, the light beam can be adjusted until it just covers the sign, marking or traffic officer. The construction of the light is weather-proof, but ventilated. Low-wattage lamps are used, although arrangements have been made to use various sizes of lamps where conditions warrant it. The entire unit is shipped complete with the lamp, and can be mounted and connected in ten minutes.

### A Portable Pumper for Mounting on Ford Cars

A portable pumper for attaching to the crank-shaft of a Ford car is being manufactured by the Barton Products Company, Jackson, Mich. This pumper is adaptable for unwatering trenches, for supplying water for road work, and for auxiliary fire protection, thus being a valuable unit for public works departments, water and sewer departments, street and highway departments, and fire companies.

The attachment is mounted on the frame of the car by a special casting which takes care of the weight of the pump, relieving the crank-shaft and motor of all strains. The centrifugal pumper is especially well adapted for construction work, as it is equipped with an open runner that makes it possible to pump water containing small sticks, gravel and mud, such as a contractor or a municipal construction department is liable to encounter when engaged in construction work.

The manufacturer claims that by actual demonstration tests the pump has shown itself to be dependable, effective and economical. It will lift water by suction 26 feet and has a normal dis-

charge capacity of 250 gallons per minute with an engine speed equal to 20 miles per hour on the road. The pump unit is built for the Barton Products Company, Jackson, Mich., by the American Steam Pump Company, of Battle Creek, Mich., and carries their guarantee. The first installation of the pump and attachment on the Ford requires an hour and a half, and thereafter the pump may be connected or disconnected in two minutes.

### Variable-Speed Stoker Drives in Municipal Power-Plant

The city of Virginia, Minn., has adopted the Westinghouse-Brown-Lipe variable-speed drive for use with its recently purchased Westinghouse multiple retort underfeed stokers. The order includes two complete transmission units with motors, each unit having five speeds. These speeds give great flexibility in stoker operation. Each Westinghouse variable-speed motor is complete with control and starting resistance. This plant has also adopted the Westinghouse bridge-wall doors for each stoker. These rugged doors are built so that they are completely protected from heat by the brickwork.

### New Model of Creeper Truck Loader

A new model of the Haiss creeper truck loader with improvements and refinements has been announced by the George Haiss Manufacturing Company, Inc., 142d Street and Rider Avenue, New York City. It is claimed that this machine is more easily operated and has greater strength and capacity and lower upkeep expense than earlier models. It has 12 regular Haiss steel plate feeding propellers, 24-inch crowding speed toothed buckets, and completely enclosed transmission and clutches.

The operation record of one of the new models shows that it consistently loaded 6 yards of 2-inch gravel in 3 minutes and got out 41



A NEW SPEEDY TRUCK LOADER FOR HANDLING GRAVEL, SAND, COAL AND OTHER LOOSE MATERIALS

# Says Chief of Police *Joe P. Thompson* of Harrisburg, Pa., concerning the *Indian*

**I can recommend the  
Indian machine as being  
the best make of motor-  
cycle for police work**

*In more than five hundred cities and towns, in every state in the Union, Indian Motorcycles are giving the same dependable, highly efficient service they give in Harrisburg.*

*The Indian Scout is everywhere establishing records of economy in patrol, escort, and other comparatively light police work, where the utmost in speed and power are not essential and a trustworthy middleweight motorcycle is necessary.*

*The Indian Big Chief 74, with its tre-*

*mendous speed and power, bears the brunt of heavy-duty police service.*

*With the Scout for the lighter work and the Big Chief for the heavier, a balance of operating efficiency at minimum upkeep is struck which is obtainable in no other way.*

*For years the Indian Motorcycle Company has specialized in police motorcycles. It will be pleased to analyze your requirements and make recommendations.*

**Booklet "Maintaining Law and Order,"  
will prove interesting. Write Dept. A-12.**

**INDIAN MOTORCYCLE COMPANY**  
Springfield, Massachusetts

such loads, or 246 yards, on 8 gallons of gasoline. A 37-horse-power Waukesha truck motor operates this loader, which weighs 14,000 pounds.

### Motor-Cycles for Fire Fighting

According to William M. Myers, Director of Public Safety, Richmond, Va., the Richmond Fire Department has four motor-cycles with fire-fighting accessories in service. Two of these machines were placed in service in 1920 and two during 1922. They were equipped to handle incipient fires which, on account of their nature, did not require the service of the larger pieces of apparatus, thus saving much wear and tear on the larger machines caused by having them respond to numerous alarms where not needed, and at the same time allowing the larger apparatus to remain in quarters for immediate response to more important alarms. During the time these motor-cycles have been in service they have responded to 643 calls, and they have proved themselves very efficient for the purpose for which they are used and have materially reduced the Richmond Fire Department's maintenance cost.

On the strength of this very remarkable showing, the Indian Motorcycle Company, Springfield, Mass., makers of Indian motor-cycles, felt that if their ordinary motor-cycle and fire car could be crudely equipped and show these decided advantages, a special apparatus designed from the ground up for fire department use would have a very strong appeal, and so they have brought out this special fire apparatus attached to their Big Chief 74 model.

The Indian fire apparatus consists of Big Chief 74 motor-cycle, and a specially designed side-car apparatus to take care of the chemical fire equipment, as well as tools. On the forward end of the body is a rugged iron cage into which is fitted 150 feet of emergency hose

with a special fire department shut-off type nozzle. Suspended on either side of this cage are four carbon tetrachloride fire guns for combating gasoline and electrical fires, as occur in automobiles. On the rear is a regulation 2½-gallon Foamite extinguisher, and a 2½-gallon soda and acid extinguisher, the former being particularly used for oil fire, the latter for ordinary brush, wood and rubbish. On the inside of the side-car, directly under the seat, is a reducer from the 2½-inch hydrant outlet to the ¾-inch for the connection on the hose. Suspended to the chassis between the body and the machine, is a 6-foot plaster hook, and on the inside, between the seat and the motor-cycle, is one 6-pound pick head ax with a leather cap protector. On the outer side of the body is a Royal Worcester steel broom, which has become so popular with fire departments in fighting brush fires and rubbish fires. Mounted on the dash is a 4-inch electrical operated searchlight for locating house numbers at night, and on the left-hand side of the dash is installed a regulation fire department siren horn.

In addition to the equipment mentioned, it is the company's intention to include a 4-foot crowbar to be used as a jimmy for opening doors. Under the seat, which tilts forward, is sufficient capacity to take care of refills for the extinguishers, a hydrant wrench, and a spanner wrench for tightening the connection on the hose. The fire department body is particularly constructed to withstand rough usage in all conditions.

### New Chief Engineer and District Manager

The United States Cast Iron Pipe & Foundry Company has announced the appointment of Thomas B. Anthony as Chief Engineer of the company, with offices at Burlington, N. J. P. T. Lawes has been appointed Southern District Manager of the company, and may be addressed at 1002 American Trust and Savings Bank Building, Birmingham, Ala.

### Tilden Now with F. Swift Gibson

Philip S. Tilden, formerly Director of Sales, Acids and Heavy Chemicals Departments of E. I. du Pont de Nemours & Company, has taken charge of the New York office of F. Swift Gibson, with headquarters at 29 Broadway.

THE AMERICAN CITY is indebted to the League of Texas Municipalities and to the League's Magazine, *Texas Municipalities*, for the paper on "Costs and Types of Paving for cities," by Prof. W. J. Emmons, published in the October number. The usual credit line was omitted through oversight.



▲ WELL-BUILT, LIGHT-WEIGHT FIRE DEPARTMENT AUXILIARY



# Here's the Evidence in Washington, D.C.

STREET	FROM	TO	YEAR LAID
Cedar St. N. W.	18th St.	119th St.	1898
Ounbarton St. N. W.	27th St.	28th St.	1899
E St. N. E.	Mass. Ave.	2nd St.	1910
East Capitol N. E.	16th St.	15th St.	1903
E St. S. E.	15th St.	16th St.	1911
E St. S. E.	16th St.	17th St.	1912
E St. S. E.	17th St.	18th St.	1913
F St. N. W.	New Jersey Ave.	19th East	1910
Florida Ave. N. W.	18th St.	14th St.	1912
G St. S. E.	Penn. Ave.	End of pavement	1914
Harvard St. N. W.	16th St. East	Columbia Road	1915
Harvard St. N. W.	16th St.	N St.	1915
Howison St. S. W.	M St.	Virginia Ave.	1912
I St. N. W.	26th St.	5th St.	1914
K St. S. E.	4th St.	8th St.	1914
K St. S. W.	13th St.	New Jersey Ave.	1912
Mass. Ave. S. E.	5th St.	16th St.	1913
Warner St. N. W.	B St.	Florida Ave.	1910
Virginia Ave. N. W.	U St.	13th St.	1913
Vermont Ave. N. W.	12th St.	Lincoln Road	1915
V St. N. W.	N. Capitol St.	O St.	1911
U St. N. E.	Rhode Island Ave.	2nd St.	1899
Tenn. Ave. N. E.	3rd St.	5th St.	1913
T St. N. W.	L St.	M St.	1913
Source St. N. W.	13th St.	2nd St.	1913
Robinson St. S. W.	1st St.	Penn. Ave. Bridge	1915
Riggs St. N. W.	15th St.	15th St.	1912
Randolph Place N. W.	(N.S.) 14th St.	14th St.	1911
Penn. Ave. S. E.	(N.S.) 12th St.	12th St.	1910
Penn. Ave. S. E.	489 East of 12th	419 E. of 12th	1909
Penn. Ave. S. E.	11th St.	At 4th St.	1911
Penn. Ave. S. E.	Intersection	29th St.	1914
Penn. Ave. S. E.	27th St.	Sheridan Circle	1913
Olive St. N. W.	M St.	C St.	1909
N. J. Ave. S. E.	O St.	Penn. Ave.	1914
23rd St. N. W.	Virginia Ave.	C St.	1912
19th St. N. W.	O St.	B St.	1910
13 1/2 St. N. W.	B St.	S St.	1908
13th St. N. E.	North Carolina	D St.	1914
12th St. N. W.	R St.	O St.	1913
9th St. S. W.	C St.	K St.	1912
9th St. N. E.	H St.	Florida Ave.	1908
8th St. N. E.	K St.	K St.	1907
8th St. N. W.	H St.	Center Market	1913
6th St. N. W.	Penn. Ave.	School St.	1913
6th St. S. E.	Virginia Ave.	Penn. Ave.	1912
2nd St. N. W.	East Capitol	K St.	1907
1st St. N. E.	I St.	H St.	1911
7th St. S. E.	O St.	At K St.	1893
B St. N. W.	Intersection		1906
E St. S. E.	Entrance to Potomac Pk.		1910
Virginia Ave. N. W.	Intersection at 13th St.		1911
Thomas Circle	Intersection 3rd 4th Sts.		
Penn. Ave. S. E.	Mass. Ave. Ver. Ave. 14th M		
	Intersection at 4th St. (N.E.)		

*Not one cent spent for  
maintenance to date.*

That's the record of 57 streets in the District of Columbia—from 8 to 30 years old—paved with Trinidad and Bermudez Native-Lake Asphalts.

What further evidence is needed that these world-old, ages-seasoned asphalts last longer and cost less than any other bituminous paving material known!

Write at once for booklets  
describing these remarkable  
world-old materials—  
Trinidad and Bermudez  
Lake Asphalts.

**THE BARBER ASPHALT CO.**  
**PHILADELPHIA**

New York Chicago Pittsburgh  
St. Louis Kansas City San Francisco



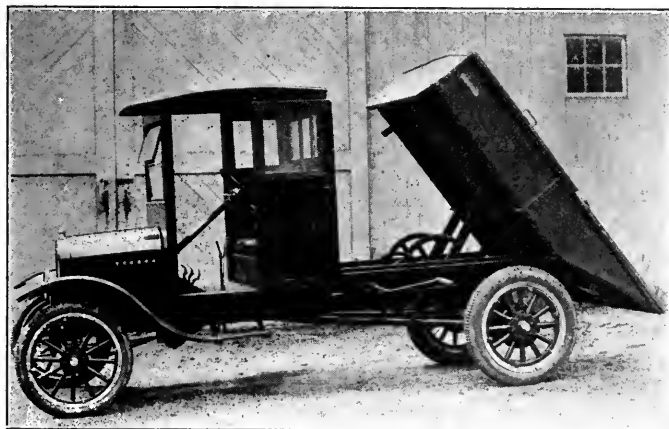
The Genasco Line includes asphaltic roofing, flooring, paints and allied protective products. Write for illustrated folders.

The above list of Trinidad and Bermudez Native-Lake Asphalt Streets in Washington, D. C.,—having an average age of 13 years and not costing one cent for maintenance to date—was copied from the official records of the Highway Engineer.

# TRINIDAD AND BERMUDEZ

## THE NATIVE LAKE ASPHALTS

Nature-made      World-old      Ages-seasoned



**A HAND-OPERATED, WATER-TIGHT DUMP BODY FOR FORD GARBAGE TRUCKS**

### **A Light-Weight Garbage Body for Municipal Work**

A dumping body fitted with an underneath hand hoist and giving a dumping angle of 55 degrees for handling garbage, has recently been designed and placed on the market by the Heil Company, Milwaukee, Wis. These bodies have steel covers, which are locked in place, preventing noise and keeping the contents closely covered. All seams of the body are electrically welded so that the body remains water-tight. The upper edges of the body are flanged over and down, giving increased strength.

The capacity of this body is 40 cubic feet, but 20 per cent additional material can be carried in the crown. Larger bodies can be furnished to cities if desired, depending on the method of handling garbage. These bodies are also furnished without the steel covers and with a tarpaulin or canvas roll cover, which some cities prefer to the steel cover.

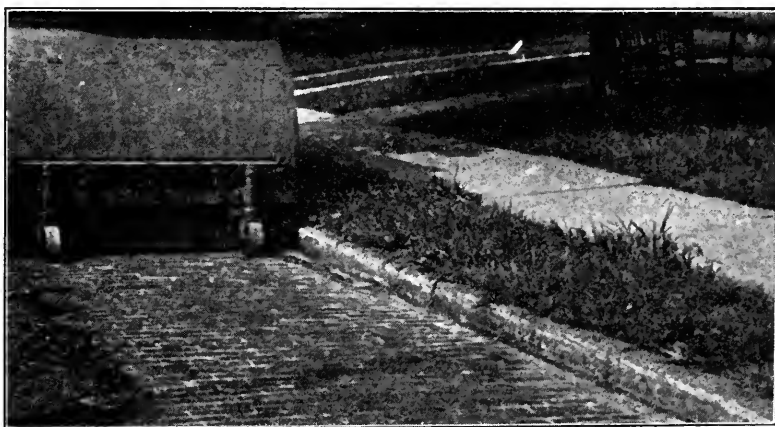
### **Westinghouse Establishes New General Engineering Division**

The Westinghouse Electric & Manufacturing Company, at the South Philadelphia Works, has established a General Engineering Division which will be devoted to the study of central station and industrial plant problems that involve the application of steam power apparatus, such as steam turbines, condensers and reduction gears. This department will also cooperate with the sales organization in providing engineering service to purchasers of this equipment.

### **A Vacuum Street Sweeper**

A new development in street cleaning machinery has been brought out by the Butler Manufacturing Company, 12411 St. Clair Avenue, Cleveland, Ohio, in the Butler vacuum street sweeper, which operates without sprinkling. This machine moves along at a speed of four to eight miles an hour while a specially constructed broom picks up the débris, delivering it to a conveyor which dumps into a dirt compartment. The fine dust and light material which is stirred up by the broom is caught in the suction of a powerful fan. This dust filters through vacuum cleaner tubes and drops into a dirt compartment, the air being discharged clean.

The sweeper consists of a heavy chassis on which is mounted standard automotive equipment and a sheet metal body structure which houses the belt, conveyor and cleaner tubes. The broom, a specially designed and patented feature, is carried in the broom case at the rear.



**CONDITION OF BLOCK PAVEMENT AFTER CLEANING WITH VACUUM STREET SWEEPER**

# Stanolind Asphalt-Iron Mountain, Mich.

BOARD OF COUNTY ROAD COMMISSIONERS  
DICKINSON COUNTY, MICHIGAN  
IRON MOUNTAIN, MICH.

PAUL ISRAELSON, ENGINEER,  
NEW HAVEN, CONN.

Standard Oil Company (Indiana)  
Chicago, Illinois.

Gentlemen:

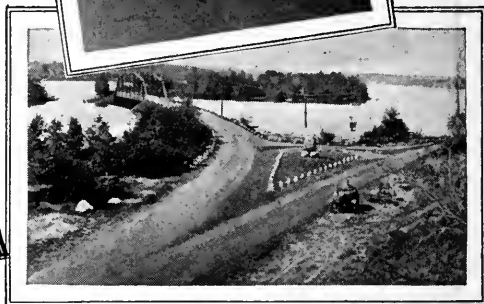
This county has used Standard Road Oils and Asphalt for many years and has always found them satisfactory and dependable.

Stanolind Asphalt "B" was used for penetration work on the north portion of the Iron Mountain-Twin Falls Road. It was hand poured in the summer of 1911. No seal coat was given this portion until the summer of 1916 when a light surface treatment of standard Road Oil No. 4 was applied.

There has been very little maintenance given to the surface of this penetration work, and considering that this road carries a heavy traffic all the year, as it is plowed in the winter, it is remarkable the way it has withstood the traffic and the elements. It is still good for many years of service before it will be necessary to give it another treatment of road oil.

I heartily recommend Standard Road Oils and Asphalt for surface treatments and penetration.

Very truly yours,  
*Paul S. Israelson*  
County Engineer.



## "Always Satisfactory and Dependable."

**Y**OU can give the taxpayers of your community good, permanent roads at a low cost of construction and maintenance if they are built by the penetration method, using Stanolind Paving Asphalt.

Economy of construction is characteristic of this type of pavement. Expensive machinery and labor are not necessary to lay it properly. Old road beds can usually be left in place if subgrade and base are in good condition. Local rock or stone can often be used and transportation charges saved.

Long life and low maintenance cost are also inherent and important features of Stanolind Asphalt roads. The hard pounding of heavy, speeding traffic is absorbed by the resilient water-proof surfaces. Neither

the heat of summer nor the cold of winter affect them detrimentally. The Iron Mountain-Twin Falls Road has withstood twelve years of continuous, heavy traffic and twelve northern Michigan winters, and it is still good for many more years of service, although Mr. Israelson's letter states that very little maintenance work has been done.

Stanolind Asphalt roads are an asset to any community. They are the arteries of transportation which, year after year, support its business and social life. If your community will build its roads now with Stanolind Paving Asphalt, you, too, will say, ten, fifteen or perhaps fifty years from now: "It is remarkable the way they have withstood the traffic and the elements."

*If you have not received your copy of our booklet telling the latest methods of constructing and maintaining asphalt pavements, we suggest that you write us at once. It will be a valuable addition to your business library. Use your official stationery, please.*

**STANDARD OIL COMPANY**  
(INDIANA)  
942 S. Michigan Avenue CHICAGO, ILLINOIS

*268*



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